ORDER NO. MB9203021C2

Service Manual

COMPACT disc DIGITAL AUDIO

DIGITAL

MASH* multi-stage noise shaping

Compact Disc Player

SL-PG520A

Colour

(K) ... Black Type
(S) ... Silver Type

Area

Suffix for Model No.	Area	Colour
(E)	Continental Europe.	(K) (S)
(EB)	Great Britain.	
(EG)	F.R. Germany & Italy.	

SPECIFICATIONS

■ **Audio**

No. of channels	2 (left and right, stereo)
Frequency response	2–20,000 Hz, ±0.5 dB
Output voltage	2 V (at 0 dB)
Dynamic range	98 dB
S/N ratio	103 dB
Harmonic distortion	0.002% (1 kHz, 0 dB)
Total harmonic distortion	0.003% (1 kHz, 0 dB)
Wow and flutter	Below measurable limit
DA converter	MASH (4 DAC)
Output impedance	Approx. 600Ω
Load impedance	More than 10 kΩ
Headphone output level	15 mW max. 32Ω (adjustable)

■ **Pickup**

Wavelength	780 nm

■ **General**

Power supply	AC 50/60 Hz, 230 V–240 V
Power consumption	10 W
Dimensions (W×H×D)	430×103×293 mm
Weight	3.8 kg

Note:
Specifications are subject to change without notice.
Weight and dimensions are approximate.

- Technics (or Panasonic) developed the world's first MASH type DAC and ADC. MASH technology was invented by NTT (LSI Labs).
- ※ MASH is a trademark of NTT.

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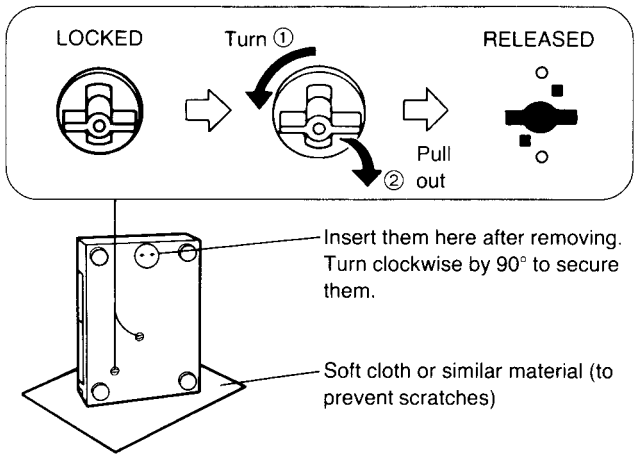
* **TECHNICAL INFORMATION**
* This technical information is located on pp 49~56 of the SL-PJ46A Service Manual (Order No. AD8902036C2). Therefore, refer to that Service Manual.

Technics

■ PLACEMENT

Before placement

Two transport security devices are secured to prevent the optical pickup from damage during transport.
Be sure to release them before use.



Note:
When transporting the unit, be sure to remove the compact disc from inside the unit. And replace the transport security devices again following the reverse order not to damage the optical pickup.

Notes of placement

■ **This unit is a precision instrument. Be sure to place it on a flat surface.**

■ **Avoid places such as the following:**

- Near any equipment or device that generates strong magnetism.
- On any heat-generating equipment or device, or in any place where the temperature is high (35°C or higher).
- Extremely cold places (5°C or below).
- Near a tuner or TV (It may cause noise in the broadcast, or disturbance of the TV picture.)

■ **When carrying or storing the unit, handle it with care so that it is not subjected to any strong bumps.**

Always remove the compact disc before storing the unit for any period of time.

■ **To avoid problems due to vibration.**

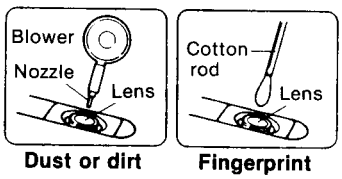
- Do not place a book or similar object under this unit.
- Do not route the connection cables (of this or other units) across the operation panel, across the top, or under the unit.

■ CLEANING OF LENS

If the lens is stained causing sound skip or operation failure, open the top cover by pressing the open button, and clean the lens.

• To remove dust or dirt

Blow the lens with the blower provided in the cleaning kit to remove dust or dirt.



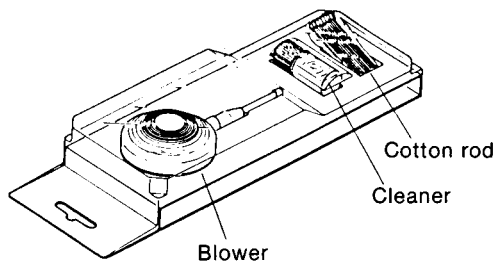
• To remove fingerprint

If the blower is not enough, moisten the cotton rod with the lens cleaner solution and wipe the lens with it from center of the lens to outside.

Cautions:

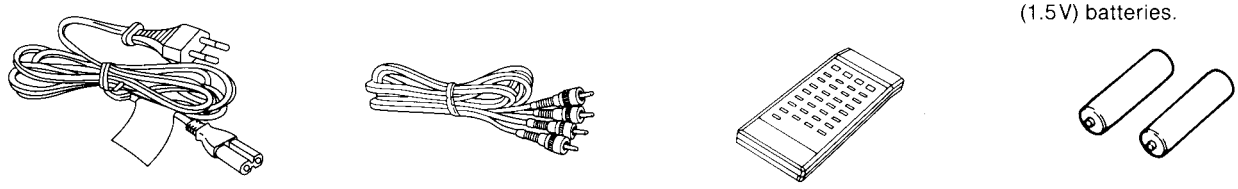
- Do not directly apply the cleaner solution to the lens. Do not apply too much solution to the cotton rod or otherwise the solution will flow into the player.
- Wipe the lens carefully. Do not give too much stress to the lens or otherwise it may scratch the lens or cause optical pickup trouble.
- If the solution should be too much applied, wipe the lens with a dry cotton rod.

Lens cleaning kit (Part No. : SZZP1038C)



■ ACCESSORIES

- AC power supply cord... 1 pc. [RJA0018-K (E, EG) / SJA193 (EB)]
- Stereo connection cable.. 1 pc. (SJP2249-3)
- Remote control transmitter (Black: EUR64798) (Silver: EUR64799) ..... 1 pc.
- Batteries ..... 2 pcs. Use two UM-4, "AAA" (R03) size (1.5V) batteries.



Note: Configuration of AC power supply cord differs according to area.

■ PRECAUTION OF LASER DIODE

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick up lens.
Wave length: 780nm
Maximum output radiation power from pick up: 100μW/VDE

Laser radiation from the pick up lens is safety level, but be sure the followings:

1. Do not disassemble the optical pick up unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pick up lens for a long time.

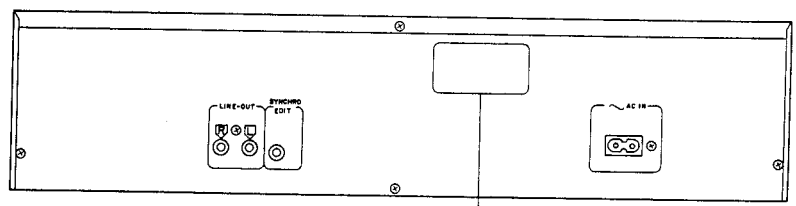
ACHTUNG: Dieses Produkt enthält eine Laserdiode. Im eingeschalteten Zustand wird unsichtbare Laserstrahlung von der Lasereinheit abgestrahlt.

Wellenlänge: 780 nm
Maximale Strahlungsleistung der Lasereinheit: 100 μW/VDE

Die Strahlung an der Lasereinheit ist ungefährlich, wenn folgende Punkte beachtet werden:

1. Die Lasereinheit nicht zerlegen, da die Strahlung an der freigelegten Laserdiode gefährlich ist.
2. Den werkseitig justierten Einstellregler der Lasereinheit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlinse blicken.
4. Nicht über längere Zeit in die Fokussierlinse blicken.

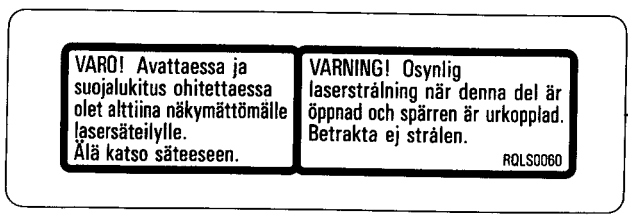
ADVARSEL: I dette a apparat anvendes laser.



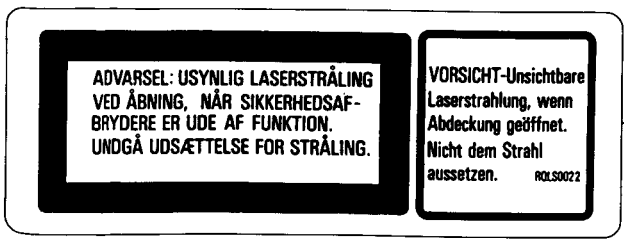
SQWD7

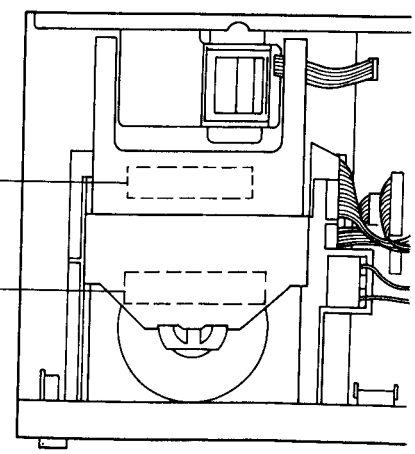
Obs:
Apparaten innehåller laser
Komponent av höger laserklass
än klass 1.

RQLS0060


VARO! Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.
VARNING! Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.
RQLS0060

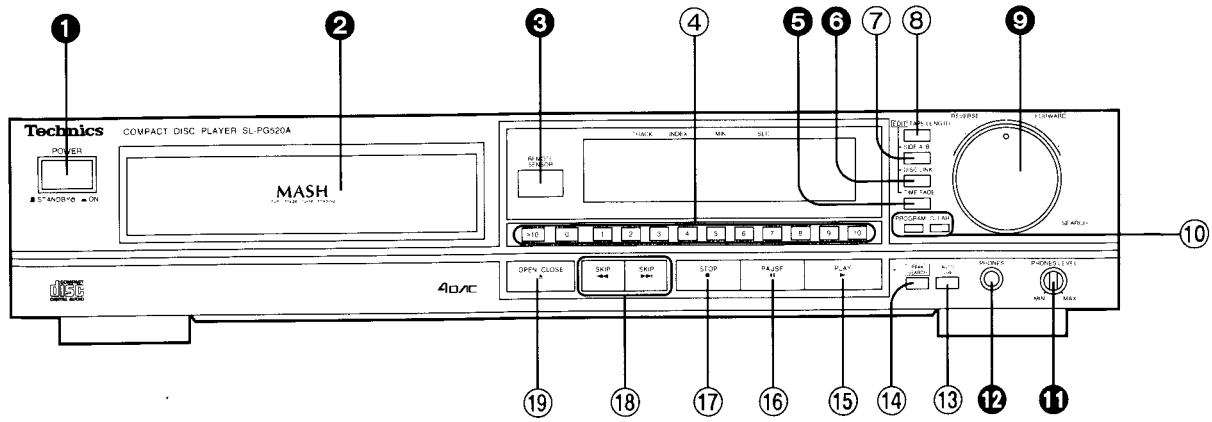
RQLS0022


ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VORSICHT-Unsichtbare Laserstrahlung, wenn Abdeckung geöffnet. Nicht dem Strahl aussetzen.
RQLS0022



■ LOCATION OF CONTROLS

The functions indicated by the black numbers (with white background, ④ etc.) can also be activated using the remote control transmitter.



Control section

❶ Power "STANDBY ⏻/ON" switch (POWER ▮ STANDBY ⏻ ▬ ON)
This switch switches ON and OFF the secondary circuit power only. The unit is in the "standby" condition when this switch is set to the STANDBY ⏻ position. Regardless of the switch setting, the primary circuit is always "live" as long as the power cord is connected to an electrical outlet.

❷ Disc tray

❸ Remote control signal sensor (REMOTE SENSOR)

④ Numeric buttons (>10, 0, 1~10)

❺ Time fade button (TIME FADE)
Pressing this button in the pause or stop mode causes the fade-out function to work at the specified time.
Pressing this button in the edit mode causes the fade-out function to work at the end of the tape when the added track exceeds the remaining time of the tape.

❻ Disc link button (DISC LINK)
This button can be used for edit recording from several discs.

⑦ Tape-side select button (SIDE A/B)
When recording compact discs to tape, this button can be used to check the number of tracks and amount of tape left over for side A or B.

⑧ Edit tape length button (TAPE LENGTH)
When compact discs are to be recorded to tape, this button can be used to calculate the number of tracks that can be recorded on each side of the tape, depending on the length of the cassette tape to be used, so that as little tape as possible is wasted.

❾ Search dial (SEARCH)
This dial can be used to locate specific places on the disc during play at high speed, either forward or reverse.

⑩ Buttons for program function
- **Program button (PROGRAM)**
  Pressing this button initiates the program play mode. You can then enter specific tacks using the numeric buttons.
- **Clear button (CLEAR)**
  Each pressing this button makes one track cleared from the programmed sequence.

⑪ Headphones volume control (PHONES LEVEL)

> Avoid listening to music at high volume levels for extended periods of time.

⑫ Headphones jack (PHONES)

⑬ Auto cue button (AUTO CUE)
Pressing this button enables the unit to stop at the beginning of every track and switch to the play standby mode.

⑭ Peak level search button (PEAK SEARCH)
Pressing this button enables the unit to search out the "peak signal" locations in tracks on a disc so as to adjust the suitable recording level on the cassette deck.

⑮ Play button (▶ PLAY)

⑯ Pause button (❚❚ PAUSE)

⑰ Stop button (■ STOP)
This button can be used to stop disc play, as well as to cancel the various play modes.

⑱ Skip buttons (⏮ SKIP, ⏭ SKIP)
These buttons can be used to skip by track in the forward or reverse direction.

⑲ Disc tray open/close button (▲ OPEN/CLOSE)

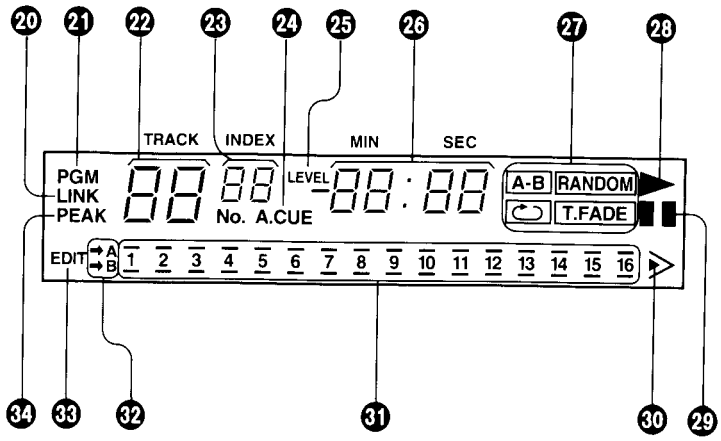
Indicators section

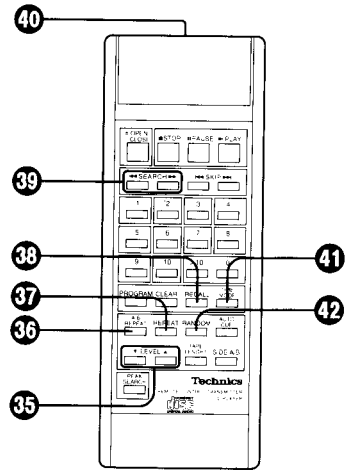
⑳ Disc link indicator (LINK)

㉑ Program indicator (PGM)

㉒ Track number display (TRACK)

㉓ Index/program number display (INDEX, No.)





㉔ Auto cue indicator (A. CUE)

㉕ Level indicator (LEVEL)
This indicator lights when the output level is attenuated by the remote control.

㉖ Time display (MIN, SEC)

㉗ Operation indicators
The following indicators light during their respective operations.

A-B ⟲ :	Peak level search A–B repeat play (remote control operation)
RANDOM :	Random play (remote control operation)
⟲ :	Repeat play (remote control operation)
T. FADE :	Time fade (fade-out)

㉘ Play indicator (▶)

㉙ Pause indicator (❚❚)

㉚ "Over" mark (≫)
This indicator lights if the total number of tracks on the disc is 17 or more.

㉛ Track number indicator (1–16)

㉜ Tape side indicator (➡ A, ➡ B)

㉝ Compact disc edit indicator (EDIT)

㉞ Peak level search indicator (PEAK)

Remote control transmitter

Unnumbered buttons on the remote control transmitter function identically to their corresponding parts on the unit.

㉟ Level buttons (▼ LEVEL ▲)
These buttons can be used to adjust output level (from 0 dB to −12 dB).

㊱ A–B repeat button (A–B REPEAT)
This button can be used to play the portion of a disc between two points (A and B) chosen by you.

㊲ Repeat button (REPEAT)

㊳ Recall button (RECALL)
This button can be used to display the contents of the programmed track sequence for confirmation.

㊴ Search buttons (◀◀ SEARCH ▶▶)
These buttons can be used to move rapidly forward or backward on the disc during play. The search speed is slow when the button is pressed at first and becomes faster if the button is pressed and held continuously.

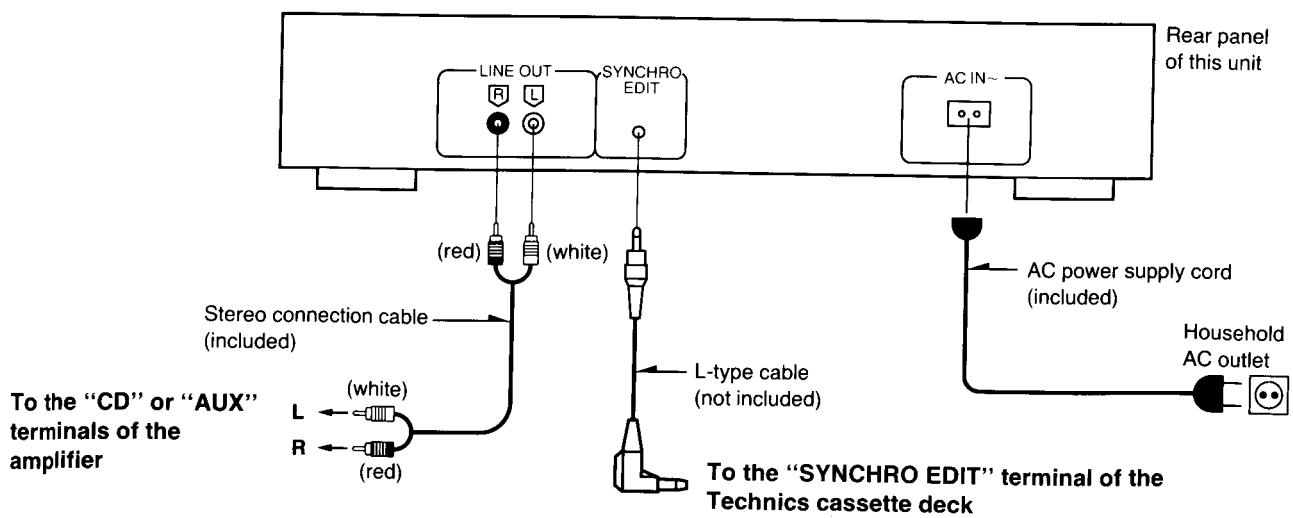
㊵ Remote control signal transmission window

㊶ Time mode select button (TIME MODE)

㊷ Random play button (RANDOM)
This button can be used to play the tracks on a disc in a random sequence.

■ CONNECTIONS

Turn all components off before making connections.



■ DISASSEMBLY INSTRUCTIONS

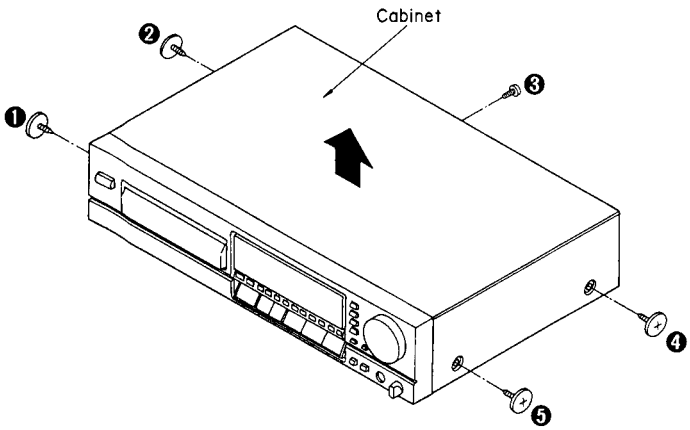
Warning: This product uses a laser diode. Refer to caution statements on page 3.

ACHTUNG:
- Die lasereinheit nicht zerlegen.
- Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

***This CD player is equipped with FPC boards, so handle them with care during disassembly and reassembly.**

Ref. No. 1	Removal of the cabinet

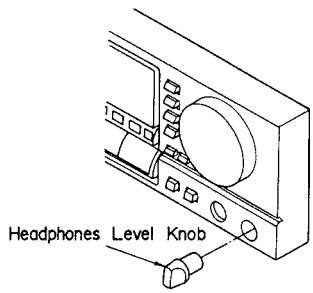
Procedure 1



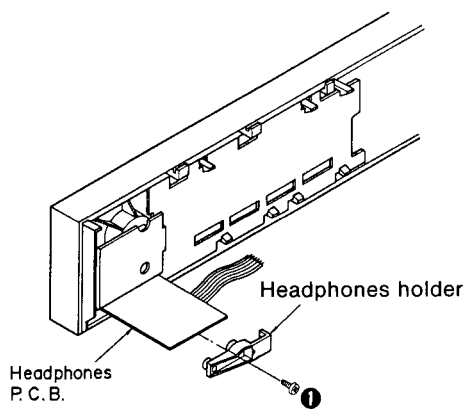
- Remove the 5 screws (❶~❺).

Ref. No. 3	Removal of the headphones P.C.B.

Procedure 1→2→3



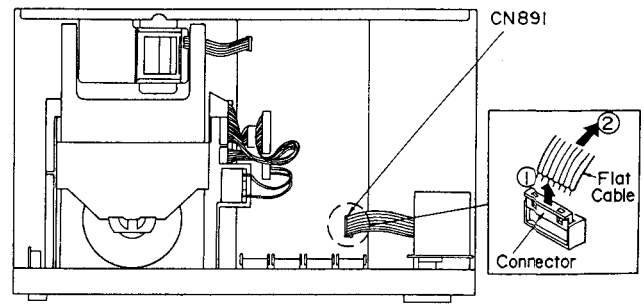
1. Pull out the headphones level knob.

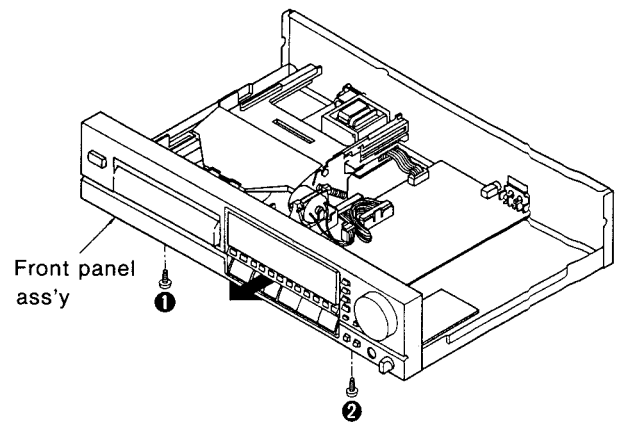


2. Remove the 1 screw (❶).
3. Remove the headphones holder.

Ref. No. 2	Removal of the front panel ass'y

Procedure 1→2

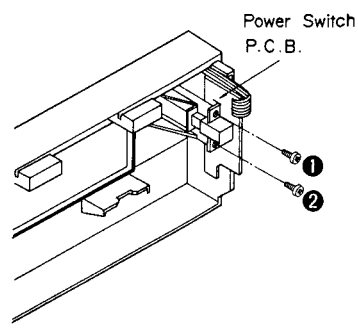




1. Remove the 1 flat cable (CN891).
2. Remove the 2 screws (❶, ❷).
3. Remove the front panel ass'y in the direction of the arrow.

Ref. No. 4	Removal of the power switch P.C.B.

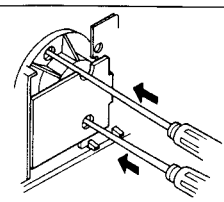
Procedure 1→2→4

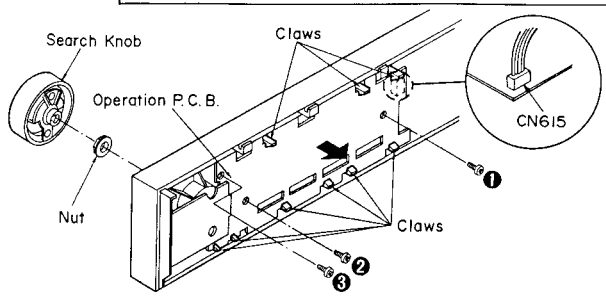


- Remove the 2 screws (❶, ❷).

Ref. No. 5	Removal of the operation P.C.B. and search P.C.B.
Procedure 1→2→3→5	

※ Remove the search knob by pushing it from behind the front panel.

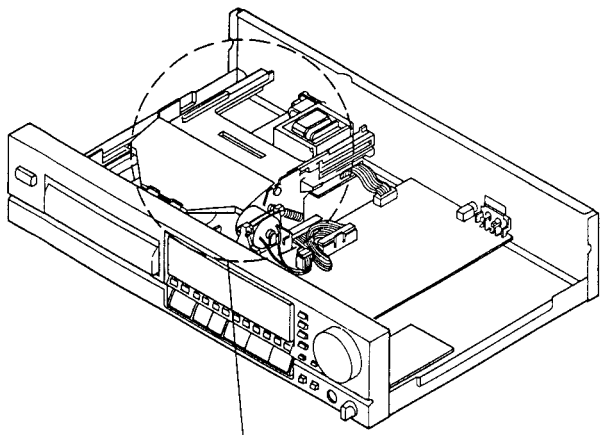


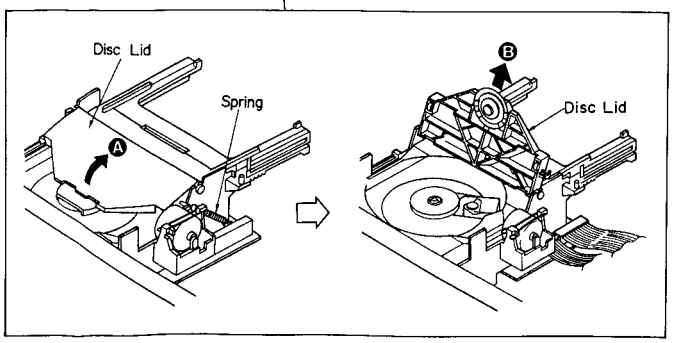


1. Remove the 3 screws (❶~❸).
2. Release the 9 claws.
3. Pull out the search knob.
4. Remove the 1 nut.
5. Remove the operation P.C.B. and search P.C.B. in the direction of the arrow.
6. Remove the 1 flat cable (CN615).

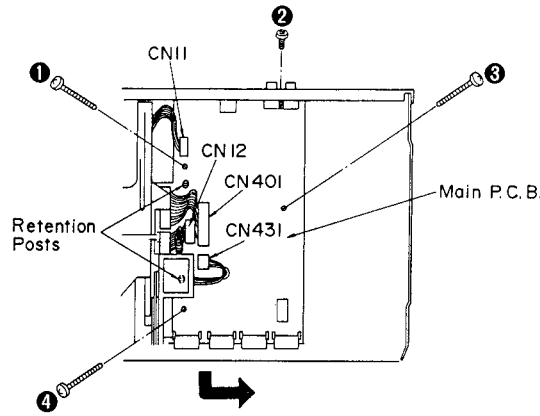
Ref. No. 7	Removal of the disc lid
Procedure 1→7	

1. Remove the spring.
2. Move the disc lid in the direction of the arrow (Ⓐ) and pull out this in the direction of the arrow (Ⓑ).





Ref. No. 6	Removal of the main P.C.B.
Procedure 1→2→3 →5→6	

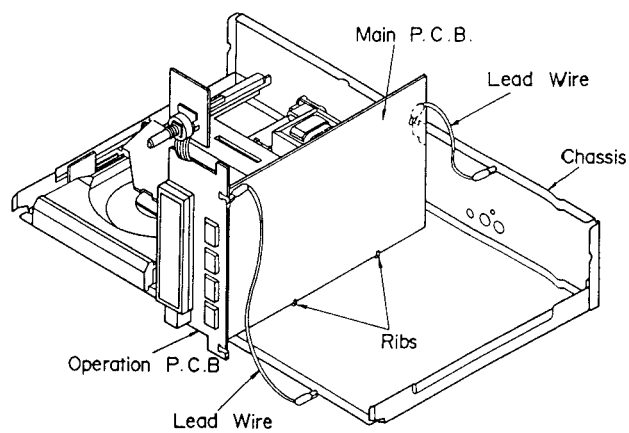


1. Remove the 4 screws (❶~❹).
2. Remove the 3 connectors (CN12, CN401, CN431).
3. Remove the 1 flat cable (CN11).
4. Lift the main P.C.B. off the retention posts on the chassis.
5. Remove the main P.C.B. in the direction of the arrow.

How to check the main P.C.B.

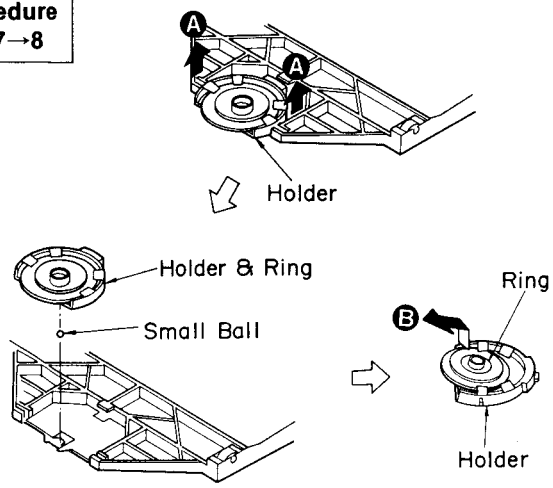
When checking the soldered surface of the main P.C.B. and replacing the parts, do as shown below.

1. Don't remove the connectors (CN12, CN401, CN431) and flat cable (CN11).
2. Connect the main P.C.B. ground terminal (LINE OUT terminal) to the chassis with a lead wire.
3. Connect the operation P.C.B. ground terminal to the chassis with a lead wire.



Ref. No. 8	Removal of the holder and ring

Procedure 1→7→8

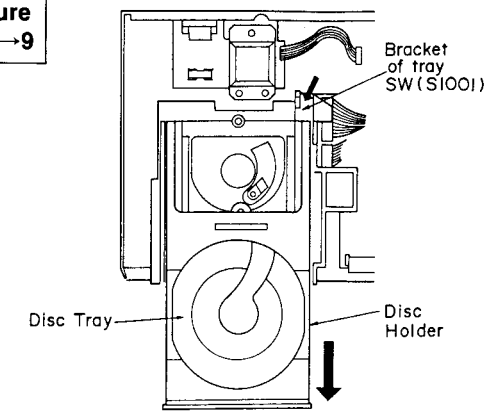


1. Pull out the holder in the direction of the arrow (Ⓐ).
2. Remove the ring in the direction of the arrow (Ⓑ).

Caution: Be sure to handle the small ball carefully.

Ref. No. 9	Removal of the disc holder

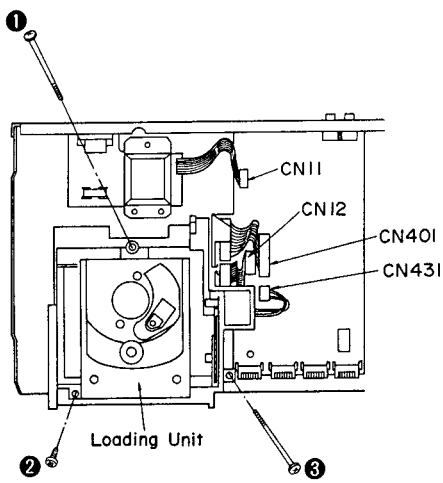
Procedure 1→2→7→9



1. Pull the disc holder slowly in the direction of the arrow until the disc tray comes up.
2. Pull the disc holder until it stops.
3. Push the bracket of tray SW (S1001) in the direction of the arrow.
4. Pull out the disc holder further to remove it.

Ref. No. 10	Removal of the loading unit

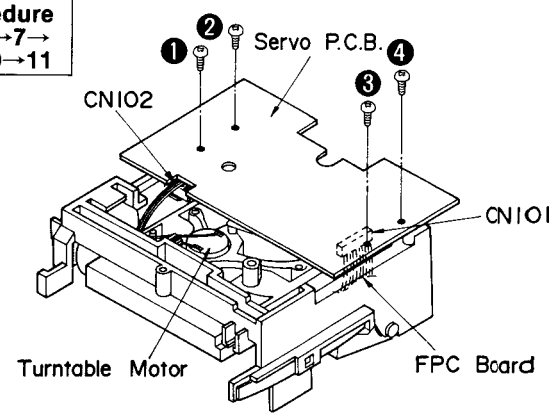
Procedure 1→2→7→9→10



1. Remove the 3 screws (❶~❸).
2. Remove the 3 connectors (CN12, CN401, CN431).

Ref. No. 11	Removal of the servo P.C.B.

Procedure 1→2→7→9→10→11

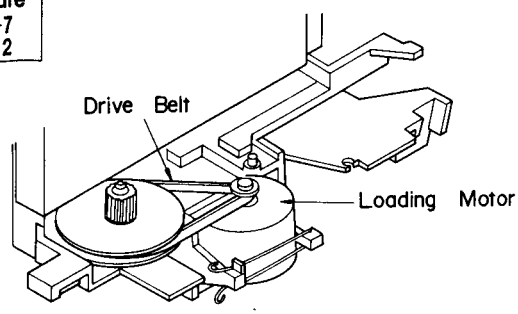


1. Remove the 4 screws (❶~❹).
2. Remove the FPC board (CN101) from the optical pickup.
3. Remove the 1 connector (CN102) of the turntable motor.

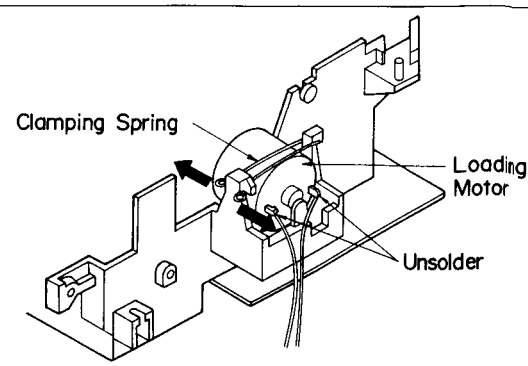
Caution: To prevent the breakdown of the laser diode, antistatic shorting pin is inserted into the FPC board.

Ref. No. 12	Removal of the loading motor

Procedure 1→2→7→9→12

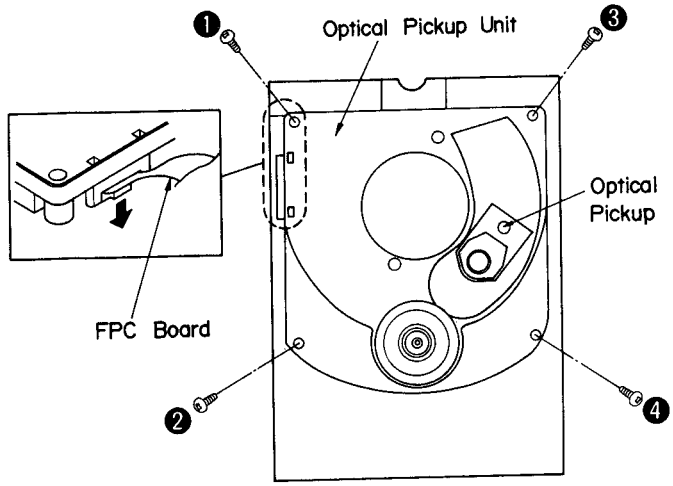


1. Remove the drive belt.



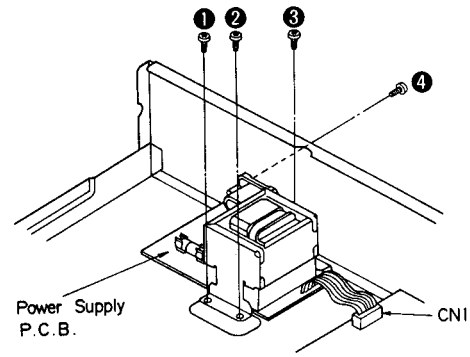
2. Release the clamping spring.
3. Unsolder the 2 terminals of the lead wire of the loading motor.

Ref. No. 13	Removal of the optical pickup unit
Procedure 1→2→7→9→10→11→13	



1. Remove the 4 screws (❶~❹).
2. Remove the FPC board from the optical pickup.

Ref. No. 14	Removal of the power supply P.C.B.
Procedure 1→14	



1. Remove the 4 screws (❶~❹).
2. Remove the 1 connector (CN11).

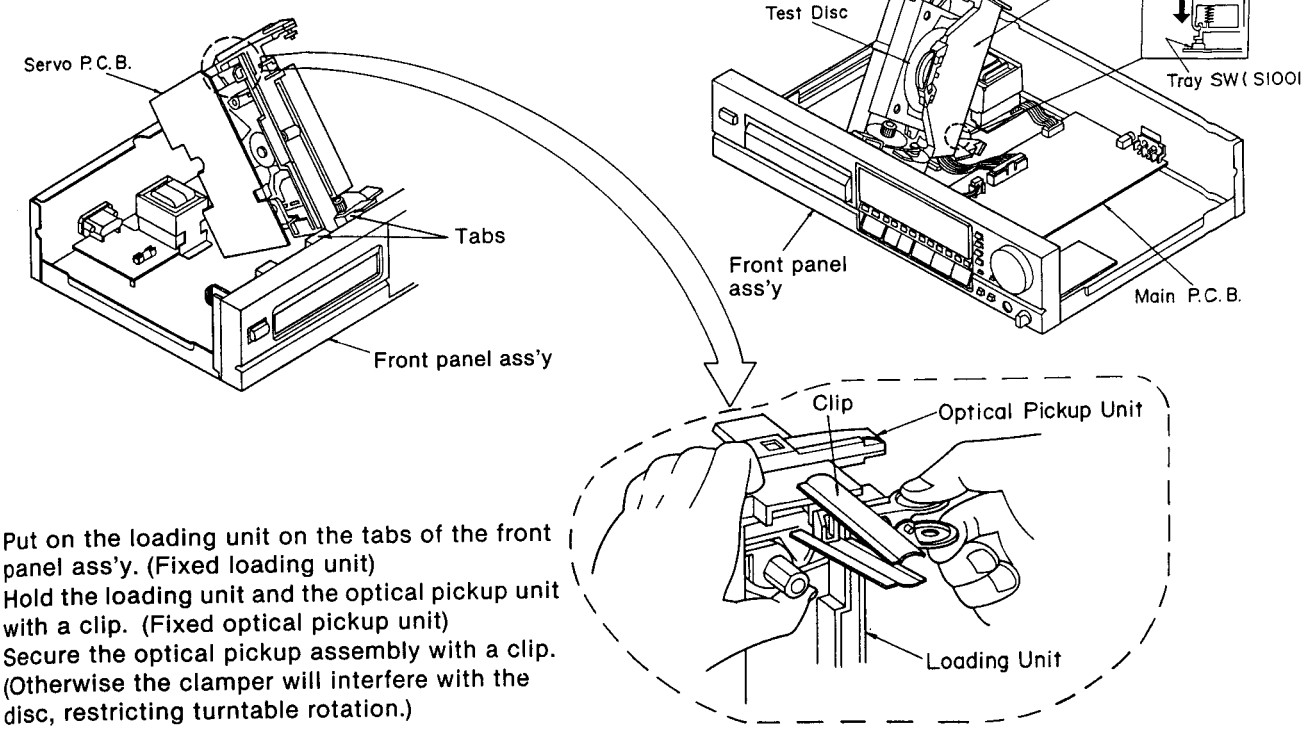
■ CHECKING OF THE SERVO P.C.B.

1. Remove the cabinet (see Ref. No. 1 of the disassembly instructions).
2. Remove the disc lid and disc holder (see Ref. No. 7 and No. 9 of the same).
3. Remove the loading unit (see Ref. No. 10 of the same).
4. When checking the soldered surface of the servo P.C.B. and replacing the parts, do as shown below.

(To play a disc)

1. Place the test disc.
2. Reinstall the disc lid to the loading unit.
3. Turn "ON" the power switch of the player.
4. Push the bracket of tray SW (S1001) in the direction of the arrow and release it.

Note: If the test disc fails to rotate, press the tray switch again.

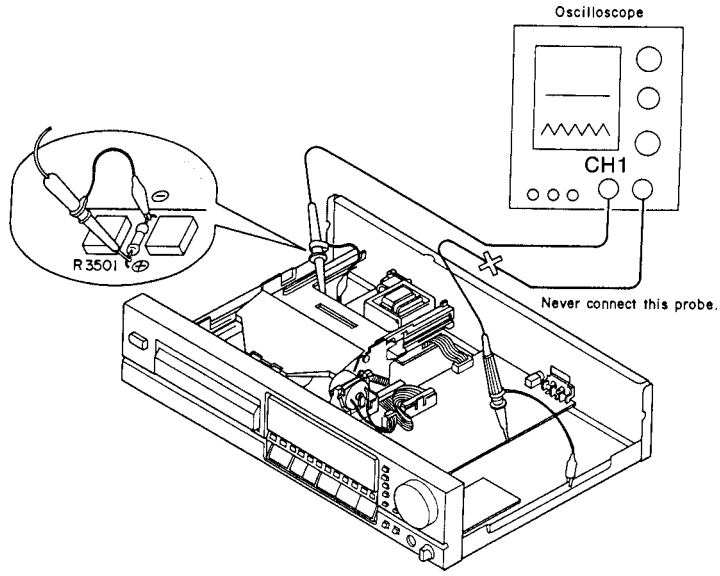


Note: Put on the loading unit on the tabs of the front panel ass'y. (Fixed loading unit)
Hold the loading unit and the optical pickup unit with a clip. (Fixed optical pickup unit)
Secure the optical pickup assembly with a clip. (Otherwise the clamper will interfere with the disc, restricting turntable rotation.)

■ MEASUREMENTS AND ADJUSTMENTS

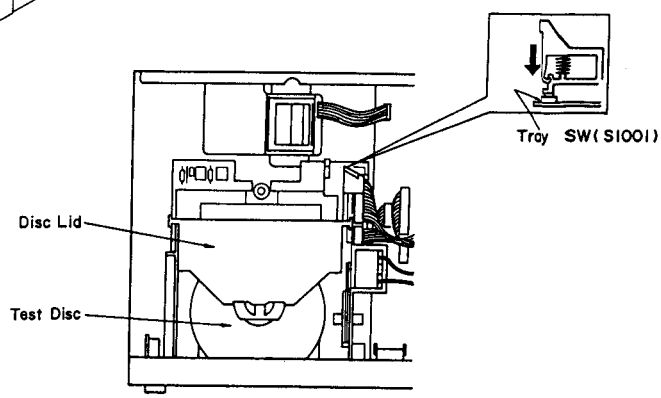
Caution:

1. It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.)
   With the unit turned "on", laser radiation is emitted from the pickup lens.
   Avoid exposure to the laser beam, especially when performing adjustments.
2. During laser power or focus offset adjustment, never connect the other probe to the unit.
   (Otherwise the unit's power supply will sustain damage.)



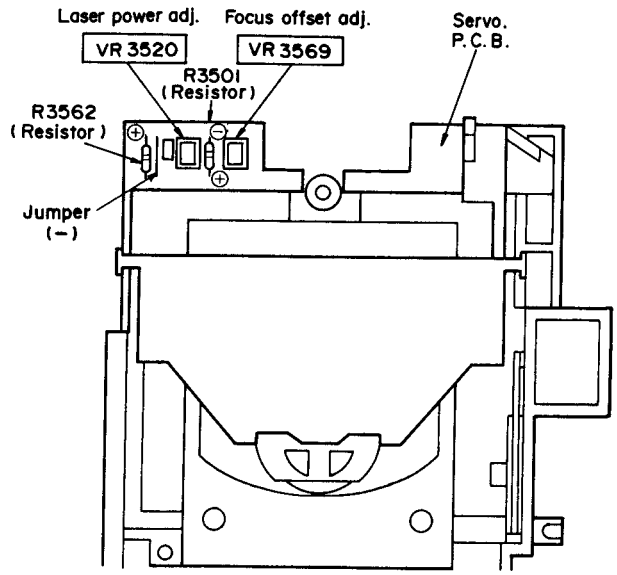
PREPARATION

1. Remove the cabinet (see Ref No. 1 of the disassembly instructions).
2. Remove the disc holder (see Ref No. 9 of the same).
3. Place the test disc on the turntable.
4. Turn "ON" the power switch at the player.
5. Push the bracket of tray SW (S1001) in the direction of the arrow and release it.
   Note: If the test disc fails to rotate, press the tray switch again.



ADJUSTMENT POINTS

• Servo P.C.B.

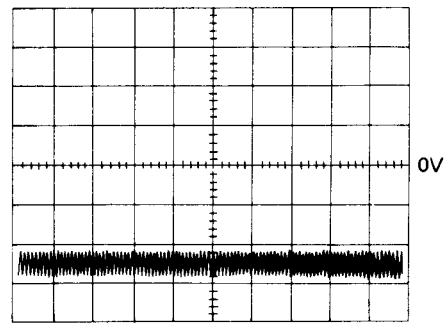


Measuring Instruments

* Playability test disc (SZZP1054C).
* Normal disc (Ordinary musical program disc).
* Dual-beam oscilloscope with bandwidth of 30MHz or better (with EXT trigger and 1: 1 probe).

(1) LASER POWER ADJUSTMENT

1. Connect the oscilloscope's CH1 probe across (+) and (−) of **R3501** (Resistor) on the servo P.C.B.
2. Switch the player power ON, and play track No. 1 on the test disc (SZZP1054C).
3. Adjust **VR3520** so that the voltage is **−50±2mV**.

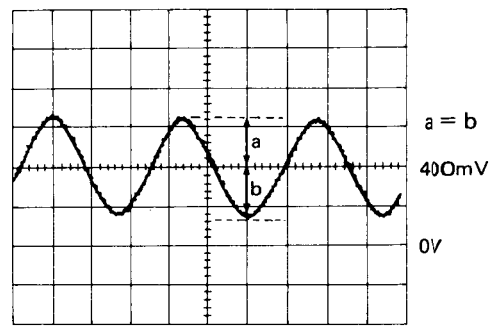


Oscilloscope setting:

VOLT 20mV
SWEEP.....0.2msec.
INPUT.....DC

(2) FOCUS OFFSET ADJUSTMENT

1. Connect the oscilloscope's CH1 probe across **R3562** (Resistor) (+) and **Jumper** (−) on the servo P.C.B.
2. Switch the player power ON, and play track No. 1 on the test disc (SZZP1054C).
3. Adjust **VR3569** until the signal amplitude become in the center of **400mV**.



Oscilloscope setting:

VOLT 200mV
SWEEP.....5msec.
INPUT.....DC

(3) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

* **Checking Skip Search**

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

* **Checking Manual Search**

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

* **Playability check by test disc**

1. Play the 0.7mm black dot and the 0.7mm wedge on the playability test disc (SZZP1054C) and verify that no sound skip or noise occurs.

■ TERMINAL FUNCTION OF IC'S

• IC6501 (482220973234/TDA8808T): Photo diode signal processor

Pin No.	Mark	I/O Division	Function
1	GCHF	I	Gain control input of HF amplifier. Current output from HF amplitude detector
2	Vp	I	Positive supply voltage
3	HFout	O	HF amplifier and equalizer voltage output
4	DET	I	HF detector voltage input
5	Sc	I	Starting up capacitor input
6	Si/$\overline{RD}$	I/O	On/off control (start input); ready signal output (starting up procedure successful)
7	Beg	I	Equalizer reference current input
8	Bgc	I	DC and LF gain control reference current input
9	FOC START	I	Focus normalizing circuit starting current
10	PLLH	O	PLL on hold output
11	$\overline{TL}$	O	Track loss output
12	$\overline{DODS}$	I	Drop out detector suppression input
13	Vext	I	Negative supply connection for FE and FElag output stage; also substrate connection
14	LPF	O	Low pass filter for Iret, used in track loss ($\overline{TL}$) detector and LF gain control

Pin No.	Mark	I/O Division	Function
15	FE	O	Current output of normalized, switched focus error signal
16	FElag	O	Current output of switched focus error signal, intended for lag network
17	LO	O	Laser amplifier current output
18	LM	I	Laser monitor diode input
19	GCLF	I	Gain control input for AC and LF amplifiers. Current output from LF amplitude detector
20	Re2	O	Summation of amplified currents from D3 and D4
21	Re1	O	Summation of amplified currents from D1 and D2
22, 23	D1, D2	I	Current inputs to DC and LF photo diode amplifier
24, 25	D3, D4	I	Current inputs to DC and LF photo diode amplifier
26	HFin	I	Current input to HF amplifier
27	GND	—	Ground connection of device
28	DEC	I	Decoupling input (internal bypass)

• IC6503 (482220973235/TDA8809T): Radial error signal processor

Pin No.	Mark	I/O Division	Function
1	Vp	I	Positive supply voltage
2	Cosc1	I	Frequency setting capacitors for oscillator
3	Cosc2		
4	Rwob	I	Wobble generator input
5	Rosc	I	Biassing resistor for oscillator frequency and internal amplitude
6	$\overline{DIV4}$	I	Radial error digital signal devided by four
7	REdig	O	Digital output of sign (Re2−Re1)
8	B3	I	Input control bits for off-, catch-, play-status and DAC output current
9	B2		
10	B1		
11	B0		
12	Vext (+)	I	Positive external voltage input
13	Vext (−)	I	Negative external voltage input (also substrate connection)
14	GND	—	GND terminal
15	RADout	O	Current output of amplified (Re2−Re1) input currents
16	REin	I	Radial error input
17	REIag	O	Voltage output of integrated (Re2−Re1) input currents

Pin No.	Mark	I/O Division	Function
18	Lag	I	Connection of integrator capacitor for (Re1−Re2) input currents
19	Lead	O	Lead output
20	Vref	I	Internal reference voltage output
21	AGC	I	Gain control input for radial error signal
22	RDAC	O	Biassing resistor for current output for track jumping ($3^1/_2$ bits)
23	offset in	I	Offset control input for radial offset
24	offset off	O	Offset control output for radial offset
25	CLPF	I	Low-pass filter for Re1 and Re2, used for radial offset control
26	CHPF	I	High-pass filter for Re1 and Re2, used for radial offset control
27	Re1	I	Input for amplified currents from photo diodes D1 and D2
28	Re2	I	Input for amplified currents from photo diodes D3 and D4

• IC301 (MN6626): Digital signal processor

Pin No.	Mark	I/O Division	Function
1	AVSS	—	GND terminal
2	IREF	I	Reference current input
3	ARF	I	RF signal input
4	DRF	I	DSL bias terminal (Not used, open)
5	DSLF	I/O	DSL loop filter terminal
6	PLLF	I/O	PLL loop filter terminal
7	AVDD	I	Power supply terminal
8	RSEL	I	RF signal polarity setting terminal (Not used, connected to VDD)
9 ∫ 16	TBUS7 ∫ TBUS0	O	Test terminal
17	FLAG	O	Flag terminal
18	IPFLAG	O	Interpolation flag terminal
19	FCLK	O	Crystal frame clock (Not used, open)
20	BYTCK	O	Byte clock (Not used, open)
21	WDCK	O	Word clock (Not used, open)
22	$\overline{RST}$	I	Reset terminal
23	TX	O	Digital audio signal (Not used, open)
24	LDG	O	Lch deglitch signal (Not used, open)
25	RDG	O	Rch deglitch signal (Not used, open)
26	SRDATA	O	Serial data output (MSB first)
27	SCK	O	Serial bit clock output
28	LRCK	O	L/R discriminating signal
29	XCK	O	Crystal OSC terminal (f=16.9344MHz) (Not used, open)
30	PMCK	O	Frequency division clock signal (Not used, open) ($f=\frac{1}{192}\times CK=88.2kHz$)
31	CSEL	I	Test terminal (Connected to GND)
32	PSEL		
33	X1	I	Crystal OSC terminal (f=16.9344MHz)
34	X2	O	
35	VSS	—	GND terminal
36	SUBQ	O	Sub-code Q data
37	SQCK	I	Sub-code Q register clock
38	$\overline{CLDCK}$	O	Sub-code frame clock (f=7.35kHz) (Not used, open)

Pin No.	Mark	I/O Division	Function
39	BLKCK	O	Sub-code block clock (f=75Hz)
40	DEMPH	O	De-emphasis ON signal ("H": ON)
41	MEMP	I	Emphasis signal
42	MLD	I	Command load signal ("L": LOAD)
43	MCLK	I	Command clock signal
44	MDATA	I	Command data signal
45	D MUTE	I	Muting input ("H": MUTE)
46	SMCK	O	System clock (f=4.2336MHz)
47	STAT	O	Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQOK)
48	CRC	O	Sub-code CRC check terminal ("H": OK, "L": NG)
49	SUBC	O	Sub-code serial output data (Not used, open)
50	SBCK	I	Sub-code serial output clock (Not used, open)
51	$\overline{TRON}$	I	Tracking servo ON signal ("L": ON)
52	CLVS	O	Turntable servo phase synchro signal ("H": CLV, "L": Rough servo)
53	PC	O	Turntable motor ON signal ("L": ON)
54	ECM	O	Turntable motor drive signal (Forced mode)
55	ECS	O	Turntable motor drive signal (Servo error signal)
56	VDD	I	Power supply terminal
57	$\overline{TEST}$	I	Test terminal (Normal: "H")
58	SSEL	I	"SUBQ" terminal mode select ("H": Q code buffer)
59	MSEL	I	"SMCK" terminal frequency select ("L": SMCK=4.2336MHz)
60	RESY	O	Re-synchronizing signal of frame sync. (Not used, open)
61	DO	I	Drop-out detection signal ("H": Drop-out) (Not used, connected to GND)
62	EFM	O	EFM signal (Not used, open)
63	PCK	O	PLL extract clock (f=4.3218MHz) (Not used, open)
64	PDO	O	Phase comparated signal of EFM and PCK (Not used, open)

• IC401 (MN1871617PMC): System control & FL drive

Pin No.	Mark	I/O Division	Function
1	VDD	I	Power supply terminal
2	OSC2	I	System clock input (f=4.2336MHz)
3	OSC1		
4	VSS	—	GND terminal
5	XI	I	Radial error digital signal
6	XO	O	Not Used, open
7	P47	I	
8 ∫ 12	P46 ∫ P42	I	Key return signal
13	SYNC REC	O	Synchro rec control
14	REC ENABLE	I	
15 ∫ 18	P37 ∫ P34	—	Not used, open and connected to terminal
19	P33	—	Not used, open and connected to terminal
20	P32		
21	P31		
22	P30		
23	P27		
24	OPEN/ CLOSE	O	Loading motor control signal
25	DMUTE	O	Muting output ("H": MUTE)
26	SI/RD	I/O	On/off control and ready signal
27 ∫ 30	B3 ∫ B0	O	Control bits for off-, catch-, play-status and DAC output current
31	REMOCON	I	Remote control signal
32	REDIG	I	Radial error digital signal
33	MDATA	O	Command data signal
34	MCLK	O	Command clock signal
35	MLD	O	Command load signal ("L": LOAD)

Pin No.	Mark	I/O Division	Function
36	TL	I	Track loss input
37	RST	I	Reset terminal
38	SQCK	O	Sub-code Q register clock
39	SUBQ	I	Sub-code Q data
40	TRAY SW	I	Disc holder open/close det. terminal
41	BLKCK	I	Sub-code block clock (f=75Hz)
42	DODS	O	Drop-out detect signal
43	STAT	I	Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQOK)
44	P95	—	Not used, open
45	CLVS	I	Spindle servo phase synchro signal ("H": CLV, "L": Rough servo)
46	TRON	O	Tracking servo ON signal ("L": ON)
47	DIV4	O	Radial error digital signal devided by four
48	EMPH	O	Emphasis signal
49	HFD	I	PLL on hold input
50	CM	—	Not used, connected to GND
51	130Hz	—	Not used, open
52	VPP	I	Power supply terminal for FL drive
53 ∫ 56	16G ∫ 13G	—	Not used, open
57 ∫ 68	12G ∫ 1G	O	FL digit signal
69 ∫ 84	A/SEGO ∫ P/SEGP	O	FL segment signal and key scan signal

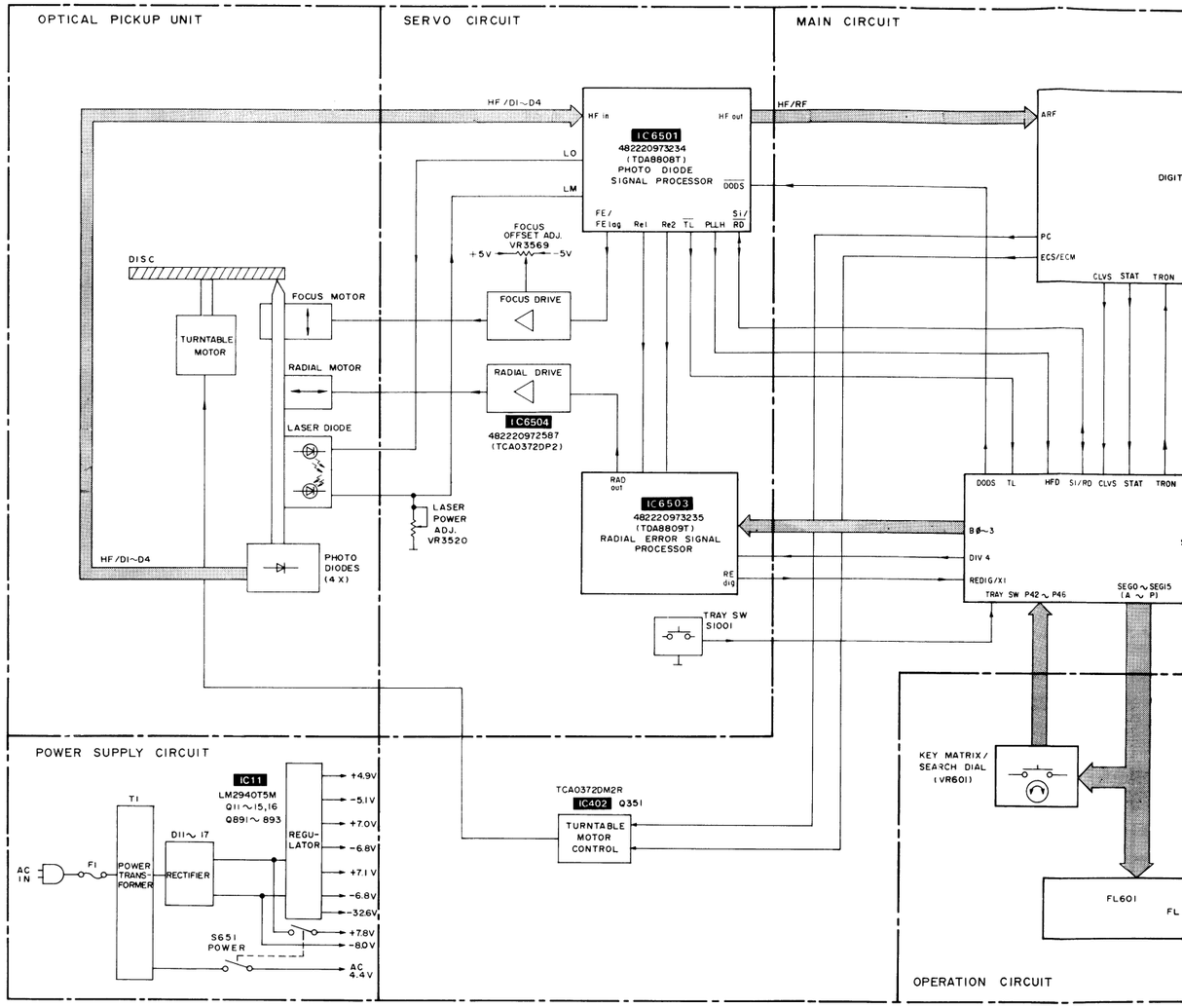
• IC801 (MN6474): Digital filter and D/A converter

Pin No.	Mark	I/O Division	Function
1	MLD	I	Command load input (load: L) (Not used, connected to VDD)
2	RSTB	I	Reset terminal
3	IE	I	Not used, connected to GND
4	TP1	—	TEST terminal
5	TP2	—	
6	TEST1	I	TEST terminal 1 (connected to GND)
7	TEST2	I	TEST terminal 2 (connected to GND)
8	NC	—	Not connected
9	NC	—	Not connected
10	AVDD4	I	Power supply terminal
11	OUTL (−)	O	Lch data output, (−) terminal
12	AVSS4	—	GND terminal
13	AVSS3	—	GND terminal
14	OUTL (+)	O	Lch data output, (+) terminal
15	AVDD3	I	Power supply terminal
16	NC	—	Not connected
17	AVDD2	I	Power supply terminal
18	OUTR (+)	O	Rch data output, (+) terminal
19	AVSS2	—	GND terminal (analog system)
20	AVSS1	—	GND terminal (analog system)
21	OUTR (−)	O	Rch data output, (−) terminal
22	AVDD1	I	Power supply terminal
23	DVDD1	I	Power supply terminal
24	DVSS1	—	GND terminal (digital system)
25	X2	O	Crystal OSC terminal (33 MHz)
26	X1	I	
27	NC	—	Not connected
28	DVDD2	I	Power supply terminal
29	DVSS2	—	GND terminal (digital system)
30	NSUB	I	Sub-strate terminal (Not used, connected to VDD)
31	ZFLGB	O	Zero input detector terminal (Not used, open)
32	192fs	O	192fs (8.4672 MHz) (Not used, open)
33	LRPOL	I	LR clock selector (Not used, connected to VDD)
34	LRCLK	I	LR discrimination signal input
35	BCLK	I	Serial bit clock input
36	SRDATA	I	Serial data input (MSB first)
37	DVSS3	—	GND terminal (digital system)
38	DVDD	I	Power supply terminal
39	384fs	O	384fs (16.9344 MHz) output
40	PD	I	Power down terminal (Not used, connected to GND)
41	MDATA	I	Mode control data (Not used, connected to VDD)
42	MCLK	I	Data clock for MDATA (not used, connected to VDD)

■ BLOCK DIAGRAM

Note)

• ⟶ Audio signal.



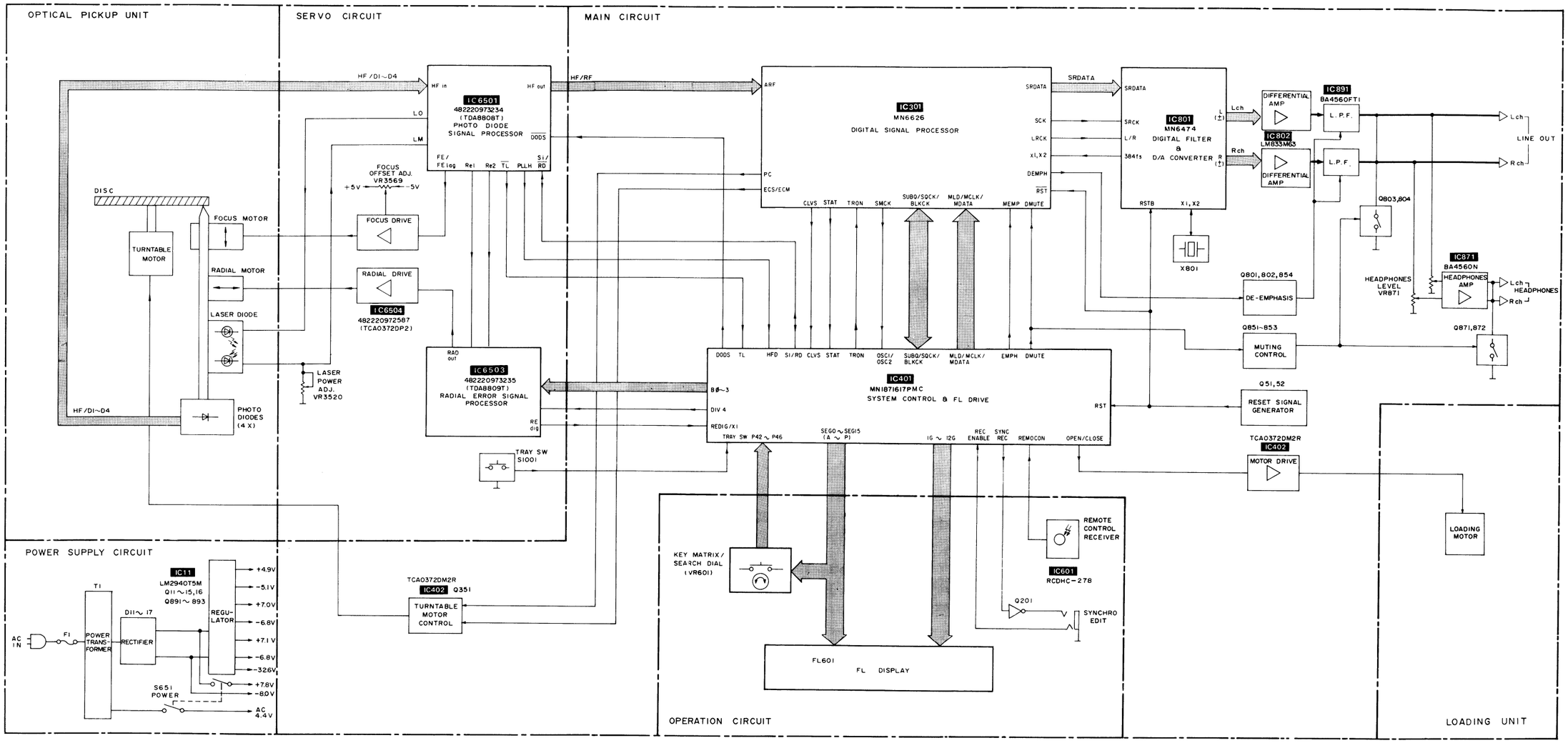
RAD out	: Current output of integrated (Re2−Re1) input currents.	RE dig (RE DIG/X1)	: Radial error digital.	P42~46	
B0~B3	: Control bits for radial circuit.	RE lag	: Radial error signal for LAG network.	1G~12G	
DODS	: Drop out detect signal.	Si/$\overline{RD}$	: On/off control for laser supply and focus circuit.	SEG0~15	
D1~D4	: Photodiode currents.	$\overline{TL}$	: Track loss signal.	MCLK	
FE	: Focus error signal.	$\overline{Div4}$	: Radial error digital devided by four.	SUBQ	
FE lag	: Focus error signal for LAG network.	HF/RF/ARF	: RF (Audio) signal.	CLDCK	
HF out	: HF amplifier and equalizer voltage output.	TRAY SW	: Disc holder open/close det. terminal.	BLKCK	
HFin	: HF current input.	CLVS	: Spindle servo phase synchro signal.	SQCK	
LM	: Laser monitor diode input.	STAT	: Status command for CRC etc.	$\overline{RST}$	
LO	: Laser amplifier current output.	DMUTE	: Data mute command.	($\overline{RSTB}$)	
Re1	: Radial error signal 1 (summation of amplified currents D3 and D4).	MDATA	: Mode control data.	$\overline{TRON}$	
Re2	: Radial error signal 2 (summation of amplified currents D1 and D2).	MLD	: Load command for mode control data (Active Low).	ECS/ECM	
				PC	
				SMCK	
				(OSC1/OS	

Function
minal (digital system)
SC terminal (33 MHz)
ected
pply terminal
minal (digital system)
e terminal d, connected to VDD)
t detector terminal d, open)
672 MHz) d, open)
selector d, connected to VDD)
mination signal input
clock input
a input (MSB first)
minal (digital system)
pply terminal
9344 MHz) output
wn terminal d, connected to GND)
trol data d, connected to VDD)
k for MDATA , connected to VDD)

■ BLOCK DIAGRAM

Note)

• ⟶ Audio signal.



RAD out : Current output of integrated (Re2−Re1) input currents.
B0~B3 : Control bits for radial circuit.
DODS : Drop out detect signal.
D1~D4 : Photodiode currents.
FE : Focus error signal.
FE lag : Focus error signal for LAG network.
HF out : HF amplifier and equalizer voltage output.
HFin : HF current input.
LM : Laser monitor diode input.
LO : Laser amplifier current output.
Re1 : Radial error signal 1 (summation of amplified currents D3 and D4).
Re2 : Radial error signal 2 (summation of amplified currents D1 and D2).

RE dig (RE DIG/X1) : Radial error digital.
RE lag : Radial error signal for LAG network.
Si/$\overline{RD}$: On/off control for laser supply and focus circuit.
$\overline{TL}$: Track loss signal.
Div4 : Radial error digital devided by four.
HF/RF/ARF : RF (Audio) signal.
TRAY SW : Disc holder open/close det. terminal.
CLVS : Spindle servo phase synchro signal.
STAT : Status command for CRC etc.
DMUTE : Data mute command.
MDATA : Mode control data.
MLD : Load command for mode control data (Active Low).

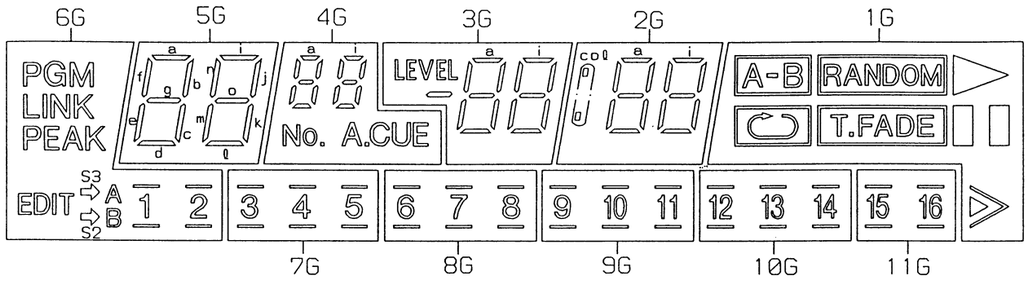
P42~46 : Key return signal.
1G~12G : FL digit signal.
SEG0~15 : FL segment signal and key scan signal.
$\overline{MCLK}$: Data clock for MDATA.
$\overline{SUBQ}$: Sub-code Q data.
CLDCK : Data frame clock (7.35 KHz).
BLKCK : Sub-code Q data block clock (75 Hz).
$\overline{SQCK}$: Sub-code Q register clock.
$\overline{RST}$ (RSTB) : Reset command (Active Low).
$\overline{TRON}$: Tracking servo ON command (Active Low).
ECS/ECM : Turntable motor drive signal.
PC : Turntable motor ON command (Active Low).
SMCK (OSC1/OSC2) : System clock (4.2336 MHz).

LRCK/L/R : L/R data discrimination clock (88.2 KHz).
SRDATA : Serial data output (MSB first).
SCK (SRCK) : Serial bit clock (2.82 MHz).
MEMP/EMPH : De-emphasis command (Active High).
SYNC REC/ REC ENABLE : Synchro rec control.
REMOCON : Remote control signal.
384fs/X1, X2 : 384fs (16.9344 MHz) signal.
DEMPH : De-emphasis ON signal.
L (±) : Lch data signal.
R (±) : Rch data signal.
OPEN/CLOSE : Loading motor control signal.

SL-PG520A SL-PG520A

■INTERNAL CONNECTION OF FL

• Grid connection diagram



• Anode connection table

	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	15	12	9	6	3	EDIT A/B	a	a	a	a	▷
P2	(15)	(12)	(9)	(6)	(3)	S2	b	b	b	b	▯▯
P3	(15)	(12)	(9)	(6)	(3)	S3	f	f	f	f	RANDOM
P4	16	13	10	7	4	1	g	g	g	g	T.FADE
P5	(16)	(13)	(10)	(7)	(4)	(1)	c	c	c	c	↻
P6	(16)	(13)	(10)	(7)	(4)	(1)	e	e	e	e	A-
P7	-	14	11	8	5	2	d	d	d	d	B
P8	-	(14)	(11)	(8)	(5)	(2)	-	No.	⇦	col	▷
P9	-	(14)	(11)	(8)	(5)	(2)	i	i	i	i	>
P10	-	-	-	-	-	PGM	j	j	j	j	-
P11	-	-	-	-	-	LINK	n	n	n	n	-
P12	-	-	-	-	-	-	o	o	o	o	-
P13	-	-	-	-	-	PEAK	k	k	k	k	-
P14	-	-	-	-	-	-	m	m	m	m	-
P15	-	-	-	-	-	-	Q	Q	Q	Q	-
P16	-	-	-	-	-	-	-	A.CUE	LEVEL	-	-

• Pin connection

PIN NO.	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	F2	F2	NP	NP	P6	P5	P4	P3	P2	P1	P0	P9	P8	P7	P6	P5	P4	P3	P2	P1	P0	N1P	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	NP	NP	F1	F1

NOTE: 1) F1,F2 --- Filament
2) NP ------ No pin
3) 1G~11G -- Grid

■SCHEMATIC DIAGRAM

(Parts list on pages 30, 31, 36, 37.)

(This schematic diagram may be modified at any time with development of new technology.)

Notes:

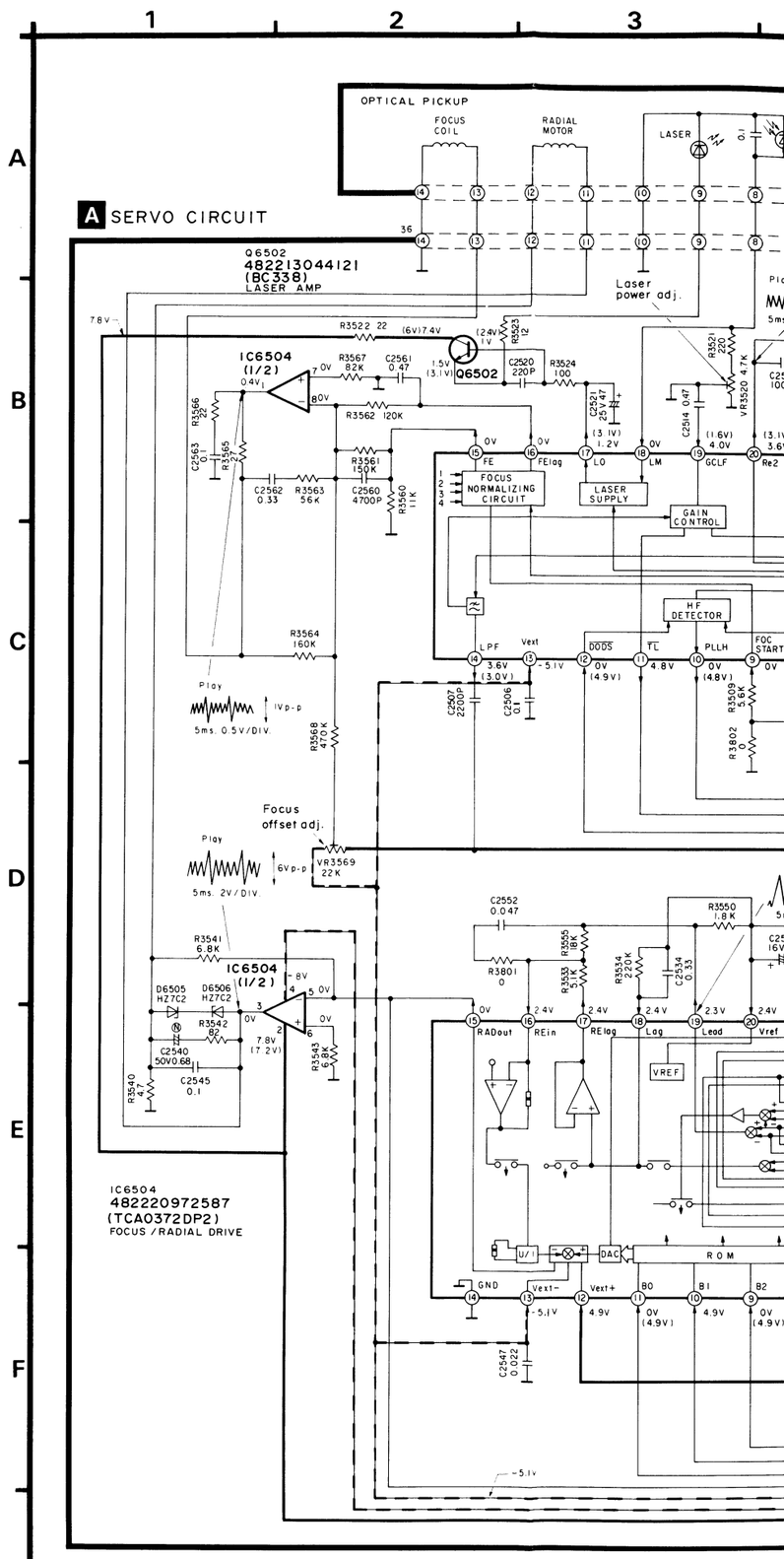
- **S601~612** : Numeric (>10, 0, 1~10) switches.
  [S601: 0, S602: 1, S603: 2, S604: 3, S605: 4, S606: 5, S607: >10, S608: 10, S609: 9, S610: 8, S611: 7, S612: 6]
- **S613** : Play (▶ PLAY) switch.
- **S614** : Skip (I◀◀ SKIP) switch.
- **S616** : Program (PROGRAM) switch.
- **S617** : Disc link (DISC LINK) switch.
- **S618** : Auto cue (AUTO CUE) switch.
- **S619** : Stop (■ STOP) switch.
- **S620** : Skip (▶▶I SKIP) switch.
- **S623** : Tape-side select (SIDE A/B) switch.
- **S625** : Time fade (TIME FADE) switch.
- **S626** : Disc tray open/close (▲ OPEN/CLOSE) switch.
- **S627** : Pause (▮▮ PAUSE) switch.
- **S629** : Clear (CLEAR) switch.
- **S630** : Edit tape length (TAPE LENGTH) switch.
- **S632** : Peak level search (PEAK SEARCH) switch.
- **S651** : Power "**STANDBY** ⏻ **/ON**" (POWER) switch in "**on**" position.
- **S1001** : Tray (OPEN/CLOSE) switch.
- The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis.
  Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.
  * The parenthesized are the values of voltage generated during playing (Test disc 1kHz, L+R, 0dB), others are voltage values in stop mode.
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- The supply part number is described alone in the replacement parts list.

Part No.	Production Part No.	Supply Part No.
IC11	LM2940T5M	LM2940T5
IC891	BA4560FT1	SVIBA4560FT1

- ———/ – – – – : Positive voltage lines and negative voltage lines.
  ▒▒▒▒ : Audio signal lines.

Caution!

IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.



■ SCHEMATIC DIAGRAM

(Parts list on pages 30, 31, 36, 37.)

(This schematic diagram may be modified at any time with development of new technology.)

Notes:

- **S601～612** : Numeric (＞10, 0, 1～10) switches.
  [S601: 0, S602: 1, S603: 2, S604: 3, S605: 4, S606: 5, S607: ＞10, S608: 10, S609: 9, S610: 8, S611: 7, S612: 6]
- **S613** : Play (▶ PLAY) switch.
- **S614** : Skip (I◀◀ SKIP) switch.
- **S616** : Program (PROGRAM) switch.
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- **S1001** : Tray (OPEN/CLOSE) switch.
- The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis.
  Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.
  ＊The parenthesized are the values of voltage generated during playing (Test disc 1kHz, L+R, 0dB), others are voltage values in stop mode.
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- The supply part number is described alone in the replacement parts list.

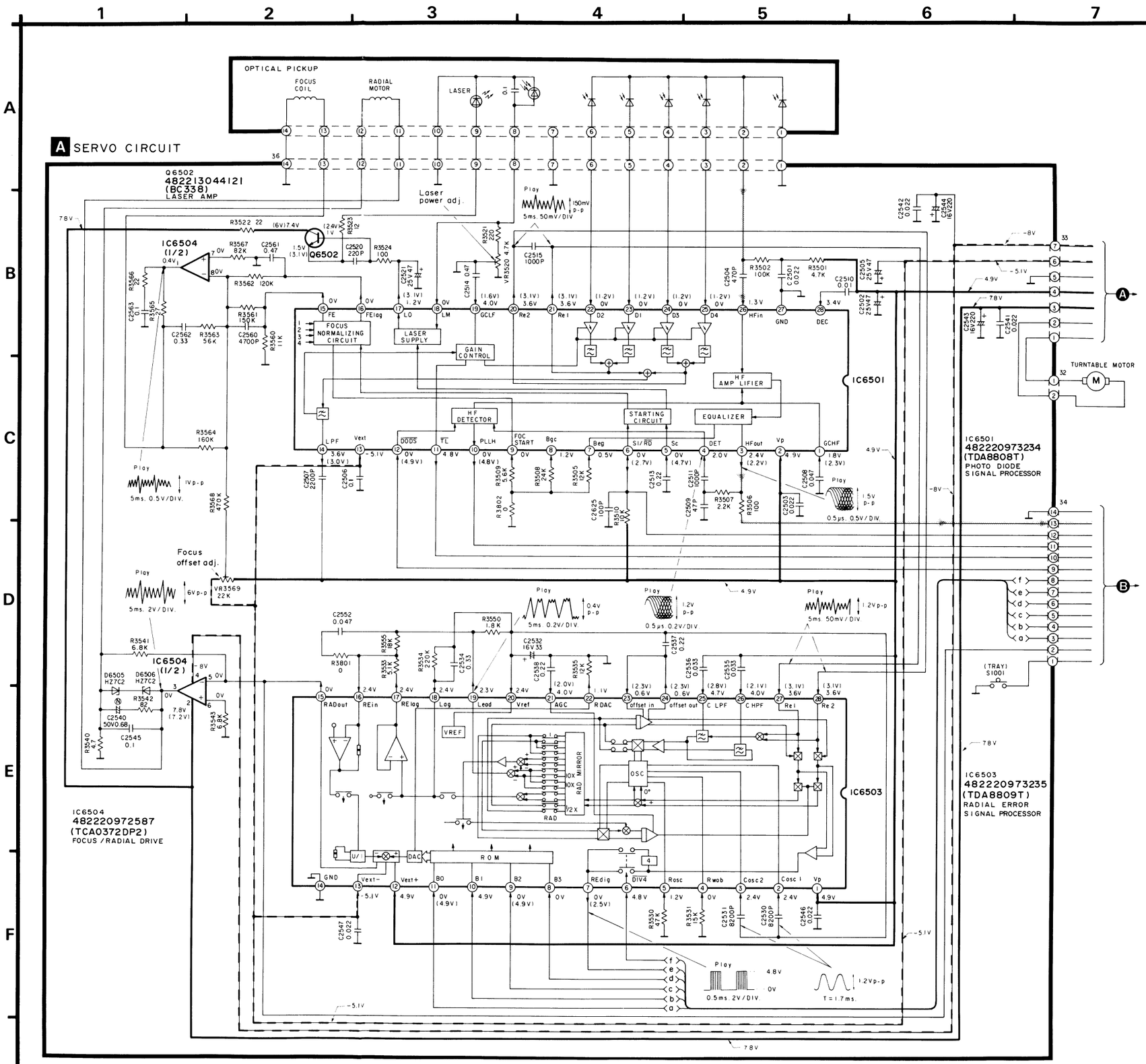
Part No.	Production Part No.	Supply Part No.
IC11	LM2940T5M	LM2940T5
IC891	BA4560FT1	SVIBA4560FT1

- ————/– – – – – : Positive voltage lines and negative voltage lines.
  ▒▒▒▒ : Audio signal lines.

Caution!

IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.



B OPERATION CIRCUIT

C SEARCH CIRCUIT

D POWER SWITCH CIRCUIT

E MAIN CIRCUIT

FL601 (RSL0066-F)

FL DISPLAY

VR601 (SEARCH DIAL)

IC601
RCDHC-278
REMOTE CONTROL RECEIVER

IC402
TCA0372DM2R
MOTOR DRIVE

IC402(1/2)

IC402(1/2)

LOADING MOTOR

IC401
MN1871617PMC
SYSTEM CONTROL & FL DRIVE

Q201
DTC124ESTP
SWITCHING(SYNCHRO REC)

IC301
MN6626
DIGITAL SIGNAL PROCESSOR

Q351
DTA124ESTP
MOTOR CONTROL

Q51,52
2SC3311C
RESET SIGNAL GENERATOR

IC801
MN6474
DIGITAL FI

S651 (POWER)

standby-on

GND601 GND602 GND621 GND622 GND623 GND624 GND625

D601 D602 D603 D604 D605 D606 D607 D610 ISS254TA

S630 (TAPE LENGTH) S623 (SIDE A/B) S629 (CLEAR) S617 (DISC LINK) S616 (PROGRAM)

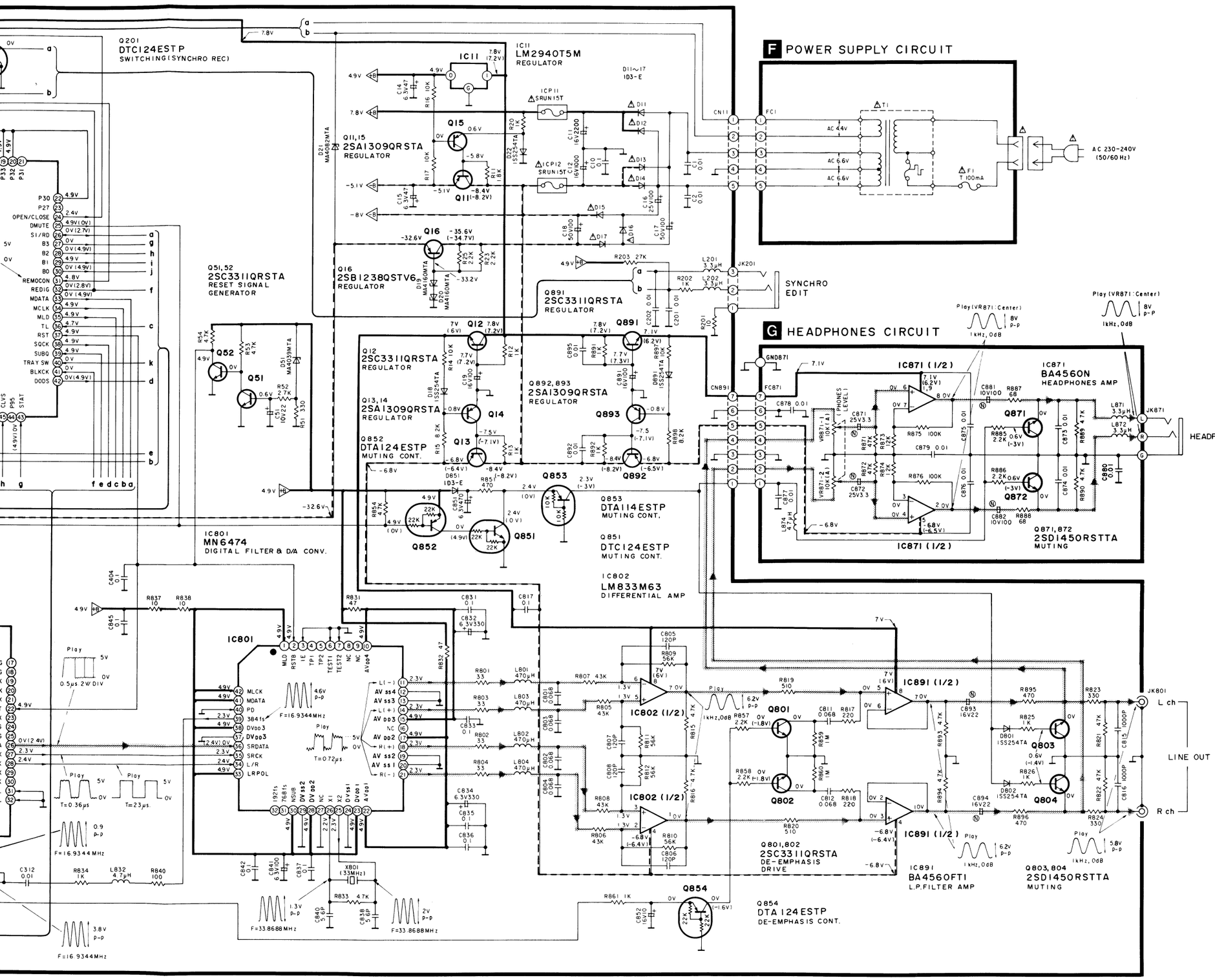
S625 (TIME FADE) S618 (AUTO CUE) S632 (PEAK SEARCH)

S627 (PAUSE ▮▮) S613 (PLAY ▶) S619 (STOP ■) S620 (SKIP ▶▶) S626 (OPEN/CLOSE ⏏) S614 (SKIP ⏮)

S603 (2) S602 (1) S605 (4) S604 (3) S601 (0) S607 (>10)

S611 (7) S610 (8) S606 (5) S612 (6) S609 (9) S608 (10)

17 18 19 20 21 22 23 24



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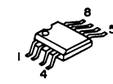
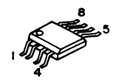
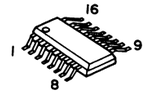
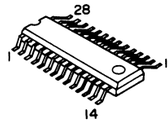
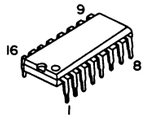
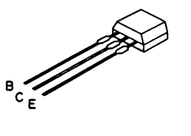
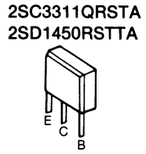
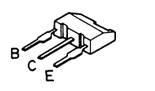
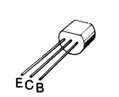
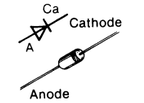
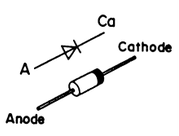
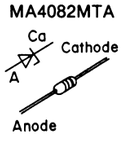
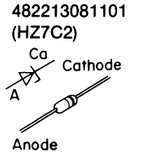
TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

BA4560FT1 	LM833M63 	TCA0372DM2R 
	482220973234 (TDA8808T) 482220973235 (TDA8809T)	482220972587 (TCA0372DP2) 
MN6474	MN6626	MN1871617PMC
BA4560N	LM2940T5M 1. Vin 2. GND 3. Vout	RCDHC-278
	DTA114ESTP DTA124ESTP DTC124ESTP 	2SA1309QRSTA 2SC3311QRSTA 2SD1450RSTTA 
2SB1238QSTV6 	482213044121 (BC338) 	1SS254TA 
1D3-E 	MA4039MTA MA4082MTA 	MA4160MTA 482213081101 (HZ7C2) 

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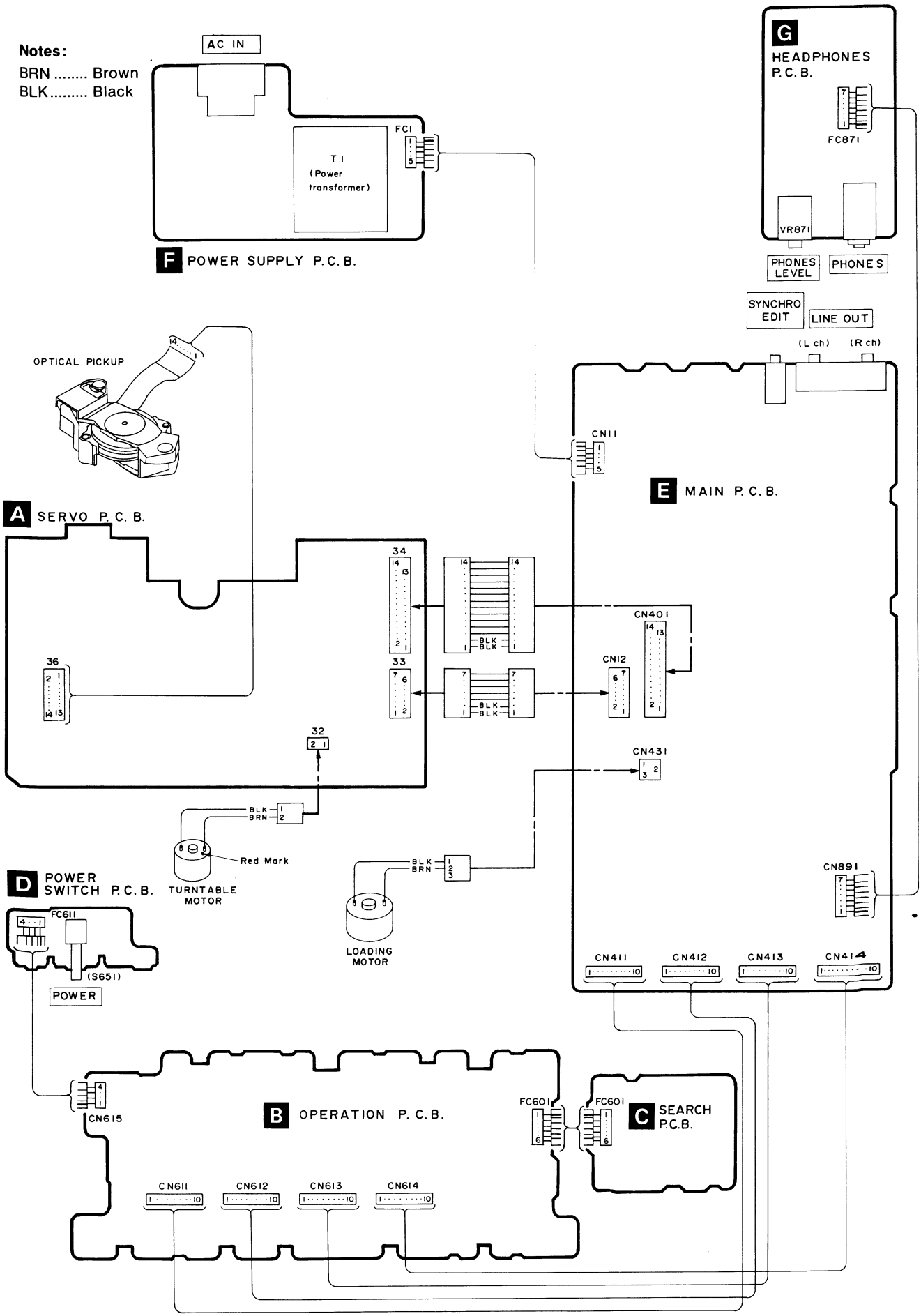
■ WIRING CONNECTION DIAGRAM



■ REPLACEMENT PARTS LIST

Notes: * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
* Remote Control Ass'y: Supply period for three years from termination of production.
* [MB] Indicates in Remarks columns parts that are supplied by MBV.
* "(K)" mark parts are used for black type only. "(S)" mark parts are used for silver type only.
Parts other than "(K)" and "(S)" marked are used for all color types.
* Warning: This product uses a laser diode. Refer to caution statements on page 3.
* ACHTUNG: Die lasereinheit nicht zerlegen.
Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC11	LM2940T5	IC, REGULATOR	
IC301	MN6626	IC, DIGITAL SIGNAL PROCESS.	
IC401	MN1871617PMC	IC, SYSTEM CONTROL&FL DRIVE	[MB]
IC402	TCA0372DM2R	IC, MOTOR DRIVE	
IC601	RCDHC-278	IC, REMOTE CONTROL RECEIVER	
IC801	MN6474	IC, DIGITAL FILTER&D/A CONV.	
IC802	LM833M63	IC, DIFFERENTIAL AMP	
IC871	BA4560N	IC, HEADPHONES AMP	
IC891	SVIBA4560FT1	IC, L. P. FILTER AMP	
		TRANSISTOR(S)	
Q11	2SA1309A-R	TRANSISTOR	
Q12	2SC3311A-Q	TRANSISTOR	
Q13-15	2SA1309A-R	TRANSISTOR	
Q16	2SB1238QSTV6	TRANSISTOR	
Q51, 52	2SC3311A-Q	TRANSISTOR	
Q201	DTC124EST	TRANSISTOR	
Q351	DTA124ESTP	TRANSISTOR	
Q801, 802	2SC3311A-Q	TRANSISTOR	
Q803, 804	2SD1450RTA	TRANSISTOR	
Q851	DTC124EST	TRANSISTOR	
Q852	DTA124ESTP	TRANSISTOR	
Q853	DTA114ESTP	TRANSISTOR	
Q854	DTA124ESTP	TRANSISTOR	
Q871, 872	2SD1450RTA	TRANSISTOR	
Q891	2SC3311A-Q	TRANSISTOR	
Q892, 893	2SA1309A-R	TRANSISTOR	
		DIODE(S)	
D11-17	1D3-E	DIODE	[MB] ⚠
D18	1SS254TA	DIODE	
D19, 20	MA4160M	DIODE	
D21	MA4082MTA	DIODE	
D22	1SS254TA	DIODE	
D51	MA4039MTA	DIODE	
D601-607	1SS254TA	DIODE	
D610	1SS254TA	DIODE	
D801, 802	1SS254TA	DIODE	
D851	1D3-E	DIODE	[MB]
D891	1SS254TA	DIODE	

Ref. No.	Part No.	Part Name & Description	Remarks
		IC PROTECTOR(S)	
ICP11, 12	SRUN15	IC PROTECTOR	⚠
		VARIABLE RESISTOR(S)	
VR601	EVQWVN00004E	V. R, SEARCH DIAL	
VR871	EVJCB0F02A14	V. R, HEADPHONES LEVEL	
		COIL(S)	
L201, 202	RLQZN3R3KL-D	COIL	[MB]
L801-804	RLQZN471KL-D	COIL	[MB]
L832	RLQZN4R7KL-D	COIL	
L871, 872	RLQZN3R3KL-D	COIL	[MB]
L874	RLQZN4R7KL-D	COIL	
		TRANSFORMER(S)	
T1	RTP1K4E013	TRANSFORMER	[MB] ⚠
		OSCILLATOR(S)	
X801	RSXA33M8J01T	OSCILLATOR	[MB]
		DISPLAY TUBE	
FL601	RSL0066-F	DISPLAY TUBE	[MB]
		FUSE(S)	
F1	XBA2C01TB0	FUSE 250V T100mA	⚠
		SWITCH(ES)	
S601	EVQPCA05R	SW, NUMERIC 0	[MB]
S602	EVQPCA05R	SW, NUMERIC 1	[MB]
S603	EVQPCA05R	SW, NUMERIC 2	[MB]
S604	EVQPCA05R	SW, NUMERIC 3	[MB]
S605	EVQPCA05R	SW, NUMERIC 4	[MB]
S606	EVQPCA05R	SW, NUMERIC 5	[MB]
S607	EVQPCA05R	SW, NUMERIC >10	[MB]
S608	EVQPCA05R	SW, NUMERIC 10	[MB]
S609	EVQPCA05R	SW, NUMERIC 9	[MB]

Ref. No.	Part No.	Part Name & Description	Remarks
S610	EVQPCA05R	SW, NUMERIC 8	MB
S611	EVQPCA05R	SW, NUMERIC 7	MB
S612	EVQPCA05R	SW, NUMERIC 6	MB
S613	EVQPCA05R	SW, PLAY	MB
S614	EVQPCA05R	SW, SKIP (B)	MB
S616	EVQPCA05R	SW, PROGRAM	MB
S617	EVQPCA05R	SW, LINK	MB
S618	EVQPCA05R	SW, AUTO CUE	MB
S619	EVQPCA05R	SW, STOP	MB
S620	EVQPCA05R	SW, SKIP (F)	MB
S623	EVQPCA05R	SW, SIDE A/B	MB
S625	EVQPCA05R	SW, TIME FADE	MB
S626	EVQPCA05R	SW, OPEN/CLOSE	MB
S627	EVQPCA05R	SW, PAUSE	MB
S629	EVQPCA05R	SW, CLEAR	MB
S630	EVQPCA05R	SW, EDIT	MB
S632	EVQPCA05R	SW, PEAK SEARCH	MB
S651	RSP2B010	SW, POWER	
		CONNECTOR (S) & SOCKET (S)	
CN11	RJS1A6605	CONNECTOR (5P)	
CN12	RJT001H007	CONNECTOR (7P)	MB
CN401	RJT001H014	CONNECTOR (14P)	MB
CN411-414	RJU003K010M1	SOCKET (10P)	
CN431	RJT001H003	CONNECTOR (3P)	MB
CN611-614	RJT003K010M1	CONNECTOR (10P)	
CN615	RJS1A6604	CONNECTOR (4P)	
CN891	RJS1A6607	CONNECTOR (7P)	MB
		JACK (S)	
JK201	RJJ33T01	SYNCHRO EDIT	
JK801	RJH3201N	LINE OUT	
JK871	QJA0455ZC-A	HEADPHONES	
		EARTH CONTACT (S)	
GND601, 602	SUSD144	EARTH CONTACT	
GND621-625	EYFAT	EARTH CONTACT	(S)
GND651	RMC0108	EARTH CONTACT	(S)
GND871	RMC0075	EARTH CONTACT	MB
		FLAT CABLE (S)	
FC1	RWJ1805100KX	FLAT CABLE (5P)	MB
FC601	RWJ0906050XX	FLAT CABLE (6P)	MB
FC611	RWJ1804200XX	FLAT CABLE (4P)	MB
FC871	RWJ1807130KX	FLAT CABLE (7P)	MB
		<SERVO P. C. B.>	

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT (S)	
IC6501	482220973234	I. C, PHOTO DIODE S. P.	MB
IC6503	482220973235	I. C, RADIAL ERROR S. P.	MB
IC6504	482220972587	I. C, FOCUS/RADIAL DRIVE	MB
		TRANSISTOR (S)	
Q6502	482213044121	TRANSISTOR	MB
		DIODE (S)	
D6505	482213030861	DIODE	MB
D6506	482213030861	DIODE	MB
		VARIABLE RESISTOR (S)	
VR3520	482210110685	V. R, LASER POWER ADJ.	MB
VR3569	482210011193	V. R, FOCUS OFFSET ADJ.	MB
		SWITCH	
S1001	482227612523	SW, TRAY	MB

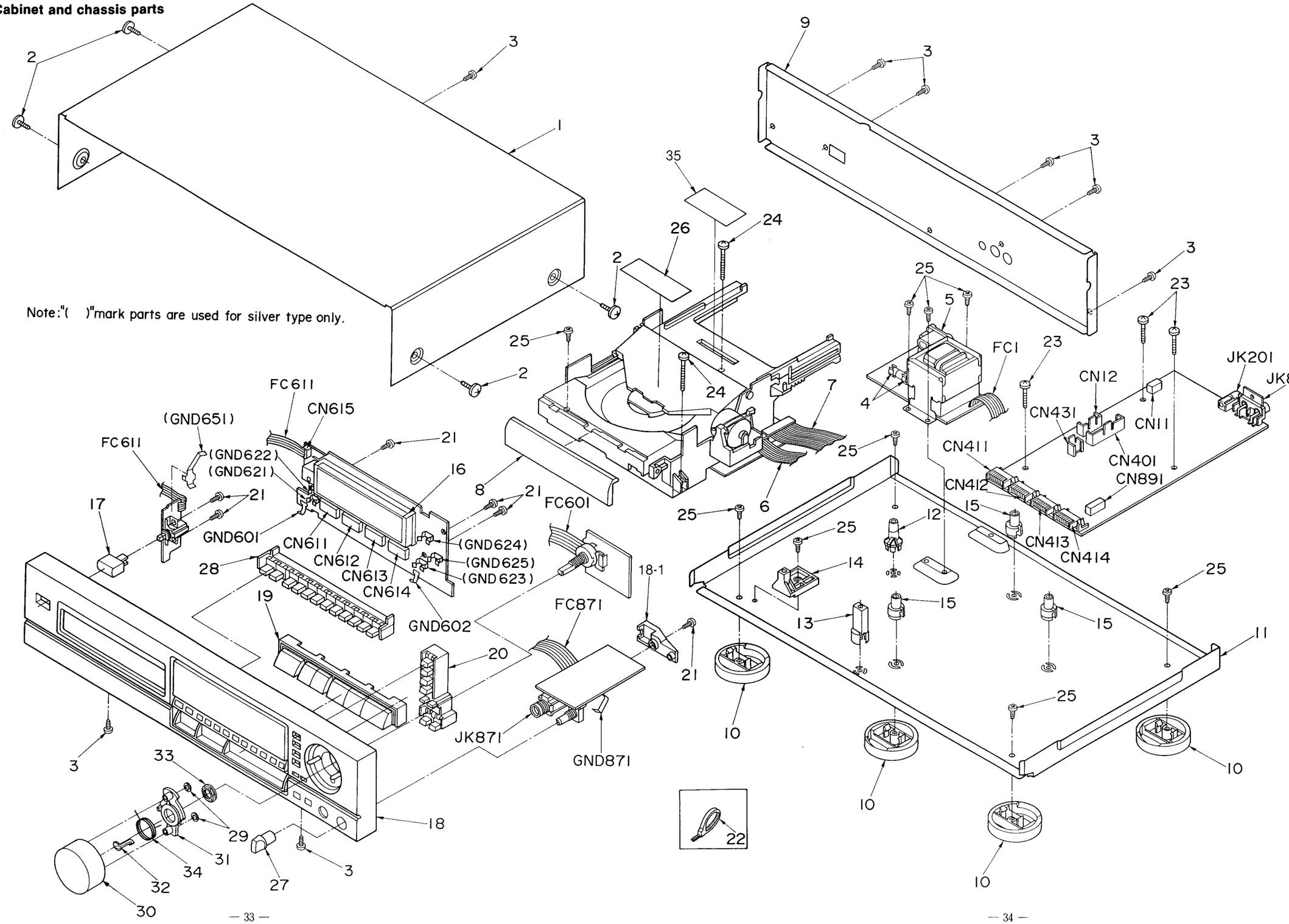
Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	RKM0152-K	CABINET	(K) MB
1	RKM0152-S	CABINET	(S) MB
2	SNE2129-1	SCREW	(K)
2	SNE2129	SCREW	(S)
3	XTBS3+8JFZ1	SCREW	
4	EYF52BC	FUSE HOLDER	
5	SJS9236	AC INLET	⚠
6	REX0007	CONNECTOR ASS'Y(7P)	MB
7	REX0285	CONNECTOR ASS'Y(14P)	MB
8	RGK0467-K	TRAY ORNAMENT	(K) MB
8	RGK0325-S	TRAY ORNAMENT	(S) MB
9	RFKHLPG520AE	REAR PANEL ASS'Y	(E, EG) MB
9	RFKHPG520AEB	REAR PANEL ASS'Y	(EB) MB
10	RKA0040B	FOOT	MB
11	RMK0077A	CHASSIS	MB
12	RMR0020	SPACER(A)	MB
13	RMR0021	SPACER(B)	MB
14	RMR0573-K	SPACER(C)	MB
15	RMR0377	P.C.B. SUPPORT	MB
16	RMR0556-K	FL HOLDER	MB
17	RGU0030	POWER BUTTON	(K)
17	RGU0030-S	POWER BUTTON	(S)
18	RFKGPG520AEK	FRONT PANEL ASS'Y	(K) MB
18	RFKGPG520AES	FRONT PANEL ASS'Y	(S) MB
18-1	RMR0378	HEADPHONES HOLDER	MB
19	RGU0467A-K2	MAIN KNOB	(K)
19	RGU0467B-S1	MAIN KNOB	(S) MB
20	RGU0486-K	EDIT KNOB	(K) MB
20	RGU0486-S	EDIT KNOB	(S) MB
21	XTBS26+8J	SCREW	
22	SHR328	FASTENER	
23	XTB3+20JFZ	SCREW	
24	XTB3+35JFZ	SCREW	
25	XTB3+8JFZ	SCREW	
26	RQLS0022	LASER CAUTION LABEL	MB
27	RGW0048	H.P. VOLUME KNOB	(K)
27	RGW0048-S	H.P. VOLUME KNOB	(S)
28	RGU0278B-K3	TEN KEY KNOB	(K) MB
28	RGU0278C-S3	TEN KEY KNOB	(S) MB
29	CSTW-2	RETAINING RING	
30	RGW0146-K	SHUTTLE KNOB	(K) MB
30	RGW0146-S	SHUTTLE KNOB	(S) MB
31	SHRD202	SPRING HOLDER	
32	SHR9451	PRASTIC BEARING	
33	SNE4021	NUT	
34	SUSD162-1	RETURN SPRING	
35	RQLS0060	LASER CAUTION LABEL	MB
		LOADING UNIT PARTS	

Ref. No.	Part No.	Part Name & Description	Remarks
101	482244450603	DISC HOLDER	MB
102	482232550176	GROMMET, CABLE	MB
103	482232550177	GROMMET, CABLE	MB
104	482246692251	DISC TRAY	MB
106	482235810115	DRIVE BELT	MB
107	482252232359	WHEEL, GEAR	MB
108	482253251518	RING, RUBBER	MB
109	482240261081	GUIDE	MB
111	482240261132	GUIDE	MB
112	482252890638	ROLLER	MB
113	482249251902	SPRING, COMPRES.	MB
114	482246661587	FOAM	MB
116	482240261107	LEVER	MB
117	482249263659	SPRING, BLADE	MB
118	482244460568	DISC LID	MB
119	482249232883	SPRING, TENSION	MB
121	482252890639	ROLLER	MB
122	482246692257	PLATE	MB
123	482240261207	HOLDER	MB
124	482252040177	SMALL BALL	MB
126	482253080503	RING, PRESSURE	MB
127	482269130209	OPTICAL PICKUP UNIT	MB
128	482240261196	SUPPORT	MB
129	482249263746	CLAMPING SPRING	MB
131	482236120998	LOADING MOTOR	MB
132	482240250244	BRACKET	MB
133	482249251935	SPRING, COMPRES.	MB
134	482270112729	CHASSIS	MB
		PACKING MATERIAL	
P1	RPG1138	PACKING CASE	(K) MB
P1	RPG1139	PACKING CASE	(S) MB
P2	RPN0429-1	CUSHION	MB
P3	RMR0024	LOCK SHAFT	MB
P4	RQCA0059	LOCK CAUTION SHEET	MB
P5	XZB60X65A01Z	PROTECTION BAG	
P6	XZB23X35C03	PROTECTION BAG(F.B.)	
P7	XZB26X17C03	PROTECTION BAG(CORD)	
		ACCESSORIES	
A1	RFKSLPG520AE	INSTRUCTION MANUAL ASS'Y	(E) MB
A1	RQT1392-B	INSTRUCTION MANUAL	(EB) MB
A1	RQT1393-D	INSTRUCTION MANUAL	(EG) MB
A2	RJA0018-K	AC POWER SUPPLY CORD	(E, EG) ⚠
A2	SJA193	AC POWER SUPPLY CORD	(EB) ⚠
A3	RQA0013	WARRANTY CARD	
A4	RQCB0169	SERVICENTER LIST	
A5	SJP2249-3	STEREO CONNECTION CABLE	
A6	EUR64798	REMOTE CONTROL TRANSMITTER	(K) MB
A6	EUR64799	REMOTE CONTROL TRANSMITTER	(S) MB
A6-1	UR64EC804	BATTERY COVER	(K)
A6-1	UR64EC804A	BATTERY COVER	(S)

■ EXPLODED VIEWS

• **Cabinet and chassis parts**

Note:"( )"mark parts are used for silver type only.



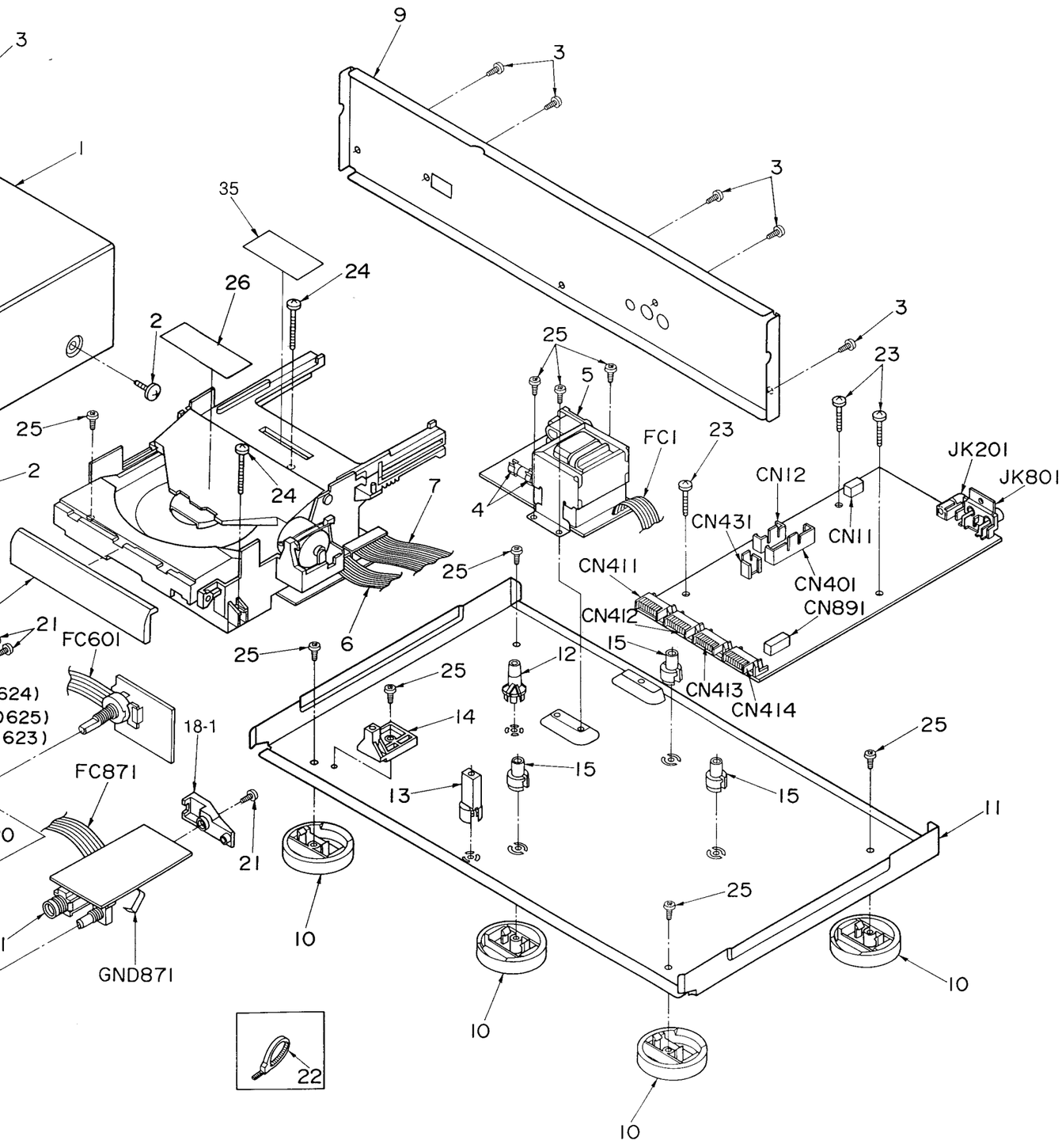
• **Loading**

• **Groundi**

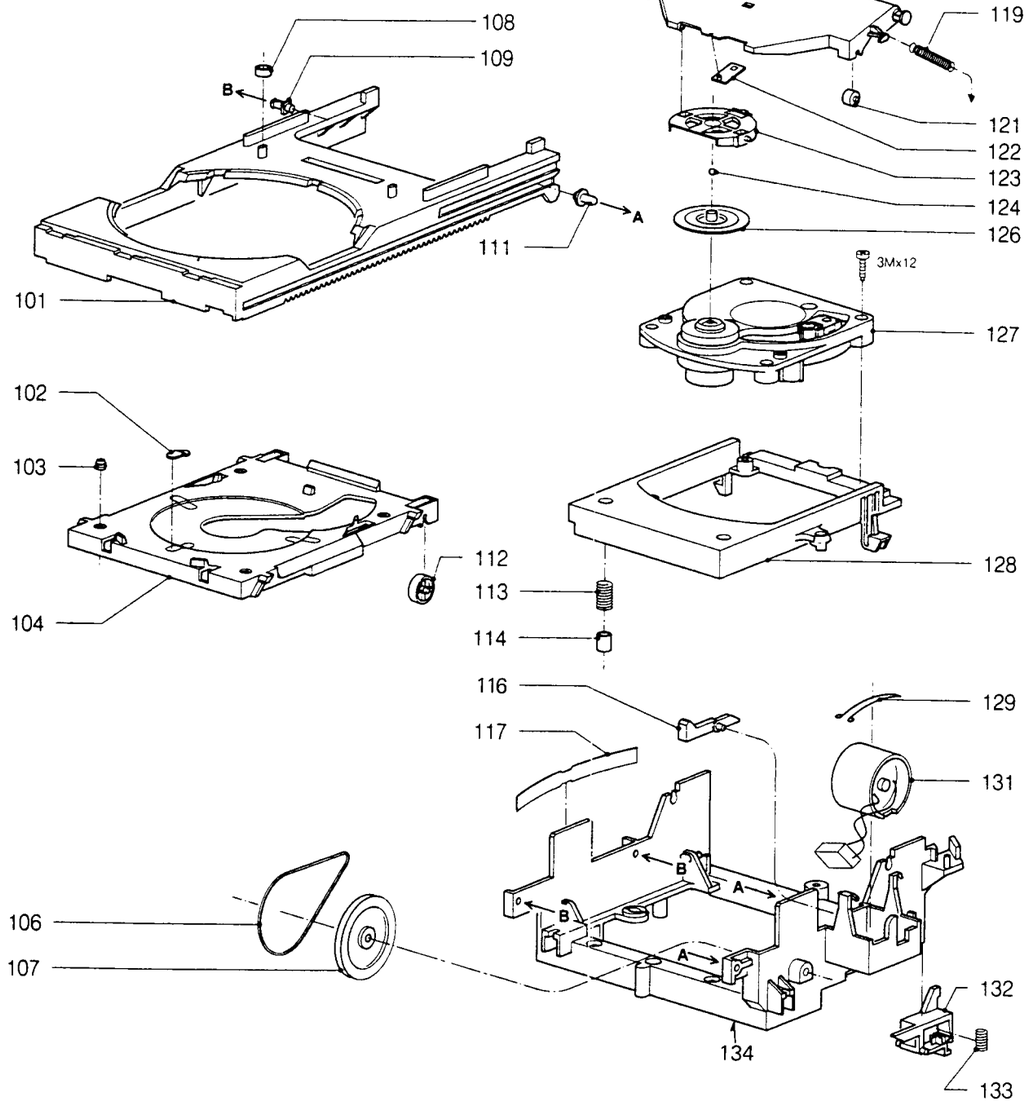
1. Human bo
   Use the a
   electricity
2. Work tabl
   Put a cond
   where the

Caution:

The static el
through the w
touch the op



• **Loading unit part**

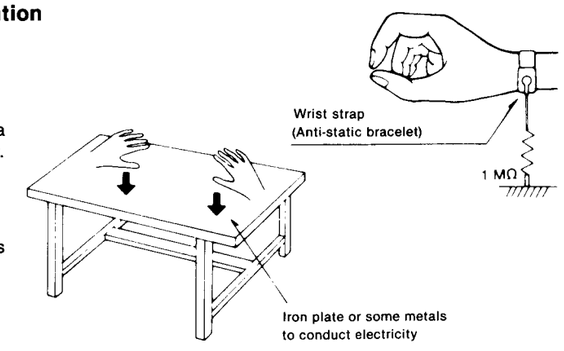


• Grounding for electrostatic breakdown prevention

1. Human body grounding
   Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
   Put a conductive material (sheet) or steel sheet on the area where the optical pickup is placed, and ground the sheet.

Caution:

The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the optical pickup.



■ RESISTORS & CAPACITORS

Notes : * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads(pF) F=Farads(F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM) , 1M=1,000k(OHM)
*[MB] Indicates in Remarks columns parts that are supplied by MBV.

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R11	ERDS2TJ182	1/4W 1.8K
R12, 13	ERDS2TJ102	1/4W 1K
R14	ERDS2TJ103	1/4W 10K
R15	ERDS2TJ822	1/4W 8.2K
R16, 17	ERDS2TJ103	1/4W 10K
R20	ERDS2TJ102	1/4W 1K
R23	ERDS2TJ222	1/4W 2.2K
R25	ERDS2TJ222	1/4W 2.2K
R51	ERDS2TJ331	1/4W 330
R52	ERDS2TJ272T	1/4W 2.7K
R53, 54	ERDS2TJ472	1/4W 4.7K
R201	ERDS2TJ100	1/4W 10
R202	ERDS2TJ102	1/4W 1K
R203	ERDS2TJ273	1/4W 27K
R301	ERDS2TJ182	1/4W 1.8K
R302	ERDS2TJ823T	1/4W 82K
R303	ERDS2TJ104	1/4W 100K
R304	ERDS2TJ471	1/4W 470
R315	ERDS2TJ104	1/4W 100K
R351	ERDS2TJ103	1/4W 10K
R352	ERDS2TJ104	1/4W 100K
R353	ERDS2TJ123	1/4W 12K
R354	ERDS2TJ104	1/4W 100K
R355, 356	ERDS2TJ333	1/4W 33K
R357	ERD25FJ6R8	1/4W 6.8 ⚠
R401	ERDS2TJ104	1/4W 100K
R411, 412	ERDS2TJ472	1/4W 4.7K
R431, 432	ERDS2TJ223	1/4W 22K
R433	ERDS2TJ104	1/4W 100K
R434	ERDS2TJ224T	1/4W 220K
R435	ERDS2TJ104	1/4W 100K
R436	ERDS2TJ224T	1/4W 220K
R437, 438	ERDS2TJ223	1/4W 22K
R601	ERDS2TJ120T	1/4W 12
R801-804	ERDS2TJ330	1/4W 33
R805-808	ERDS2TJ433	1/4W 43K
R809-812	ERDS2TJ563	1/4W 56K
R815, 816	ERDS2TJ472	1/4W 4.7K
R817, 818	ERDS2TJ221	1/4W 220
R819, 820	ERDS2TJ511	1/4W 510
R821, 822	ERDS2TJ473	1/4W 47K
R823, 824	ERDS2TJ331	1/4W 330
R825, 826	ERDS2TJ102	1/4W 1K
R831, 832	ERDS2TJ470	1/4W 47
R833	ERDS2TJ472	1/4W 4.7K
R834	ERDS2TJ102	1/4W 1K
R837, 838	ERDS2TJ100	1/4W 10
R840	ERDS2TJ101	1/4W 100
R851	ERDS2TJ471	1/4W 470
R854	ERDS2TJ472	1/4W 4.7K
R857, 858	ERDS2TJ222	1/4W 2.2K
R859, 860	ERDS2TJ105T	1/4W 1M
R861	ERDS2TJ102	1/4W 1K
R871, 872	ERDS2TJ473	1/4W 47K
R873, 874	ERDS2TJ123	1/4W 12K
R875, 876	ERDS2TJ104	1/4W 100K
R885, 886	ERDS2TJ222	1/4W 2.2K
R887, 888	ERDS2TJ680T	1/4W 68
R889, 890	ERDS2TJ472	1/4W 4.7K
R891, 892	ERDS2TJ102	1/4W 1K
R893, 894	ERDS2TJ472	1/4W 4.7K
R895, 896	ERDS2TJ471	1/4W 470
R897	ERDS2TJ103	1/4W 10K
R898	ERDS2TJ822	1/4W 8.2K
		CAPACITORS
C1, 2	ECFTD103KXL	50V 0.01U
C10	ECFR1E104ZF5	25V 0.1U
C11	ECA1CM222B	16V 2200P
C12	ECEA1CU102	16V 1000U
C14, 15	ECEA0JKA470B	6.3V 47U
C16	ECEA1EU101	25V 100U
C17, 18	ECEA1HU101	50V 100U
C19	ECEA1CKA101B	16V 100U
C51	ECEA1AKA220B	10V 22U
C201, 202	ECBT1C103NS5	16V 0.01U
C301	ECBT1C103NS5	16V 0.01U
C302	ECBT1H270J5	50V 27P
C303, 304	ECFR1E104ZF5	25V 0.1U
C305	ECBT1H102KB5	50V 1000P
C306	ECFR1E223KB	25V 0.022U
C307	ECQV1H474JZ3	50V 0.47U
C308	ECBT1H102KB5	50V 1000P
C309	ECFR1E104ZF5	25V 0.1U
C312	ECBT1C103NS5	16V 0.01U
C351	ECBT1H102KB5	50V 1000P
C401	ECFR1E104ZF5	25V 0.1U
C402	ECEA0JKA470B	6.3V 47U
C404	ECFR1E104ZF5	25V 0.1U
C601, 602	ECBT1H102KB5	50V 1000P
C801-804	ECQV1H683JZ3	50V 0.068U
C805-808	ECBT1H121KB5	50V 120P
C811, 812	ECQV1H683JZ3	50V 0.068U
C815, 816	ECBT1H102KB5	50V 1000P
C817	ECFR1E104ZF5	25V 0.1U
C831	ECFR1E104ZF5	25V 0.1U
C832	ECEA0JU331B	6.3V 330U
C833	ECFR1E104ZF5	25V 0.1U
C834	ECEA0JU331B	6.3V 330U
C835-837	ECFR1E104ZF5	25V 0.1U
C838	ECBT1H5R6K5	50V 5.6P
C840	ECBT1H5R6K5	50V 5.6P
C841	ECEA0JKA101B	6.3V 100U
C842	ECFR1E104ZF5	25V 0.1U
C845	ECFR1E104ZF5	25V 0.1U
C851	ECEA0JU471	6.3V 470U
C852	ECEA1CKA100B	16V 10U
C871, 872	ECEA1EKN3R3B	25V 3.3U
C873, 874	ECQB1H103KF3	50V 0.01U
C875-880	ECBT1C103NS5	16V 0.01U
C881, 882	ECEA1AN101XB	10V 100U
C891	ECEA1CKA101B	16V 100U
C892	ECBT1C103NS5	16V 0.01U
C893, 894	ECEA1CKN220B	16V 22U
C895	ECBT1C103NS5	16V 0.01U
		<SERVO P.C.B.>
		RESISTORS
R3501	482205024702	1/8W 4.7K [MB]
R3502	482205110104	1/8W 100K [MB]
R3505	482205110123	1/4W 12K [MB]
R3506	482205110101	1/8W 100 [MB]
R3507	482205120222	1/8W 2.2K [MB]
R3508	482205110243	1/4W 24K [MB]
R3509	482205110562	1/8W 5.6K [MB]
R3510	482205110103	1/8W 10K [MB]
R3521	482205110221	1/8W 220 [MB]
R3522	482205210229	1/3W 22 [MB]
R3523	482205210129	1/3W 12 [MB]
R3524	482205110101	1/8W 100 [MB]
R3530	482205110473	1/4W 47K [MB]
R3531	482205110153	1/4W 15K [MB]
R3533	482205110152	1/4W 5.1K [MB]
R3534	482205110224	1/8W 220K [MB]
R3535	482205021203	3/5W 12K [MB]
R3540	482205024708	3/5W 4.7 [MB]
R3541	482205110682	1/4W 6.8K [MB]
R3542	482205110829	1/8W 82 [MB]
R3543	482205110682	1/8W 6.8K [MB]
R3550	482205110182	1/4W 1.8K [MB]
R3555	482205110183	1/4W 18K [MB]
R3560	482211191494	1/8W 11K [MB]
R3561	482205110154	1/4W 150K [MB]
R3562	482205021204	3/5W 120K [MB]
R3563	482205110563	1/8W 56K [MB]
R3564	482211191495	1/8W 160K [MB]
R3565	482205210279	1/3W 27 [MB]
R3566	482205110229	1/8W 22 [MB]
R3567	482205028203	1/8W 82K [MB]
R3568	482205110474	1/4W 470K [MB]
		CHIP JUMPER(S)
R3801	482205110008	JUMPER [MB]
R3802	482205110008	JUMPER [MB]
		CAPACITORS
C2501	482212232863	50V 0.022U [MB]
C2502	482212440433	25V 47U [MB]
C2503	482212232863	50V 0.022U [MB]
C2504	482212231727	63V 470P [MB]
C2505	482212440433	25V 47U [MB]
C2506	482212233496	63V 0.1U [MB]
C2507	482212231644	63V 2200P [MB]
C2508	532212142491	100V 0.047U [MB]
C2509	482212231772	50V 47P [MB]
C2510	482212232442	50V 0.01U [MB]
C2511	482212231746	50V 1000P [MB]
C2513	482212143375	63V 0.22U [MB]
C2514	482212151252	63V 0.47U [MB]
C2515	482212231746	50V 1000P [MB]
C2520	482212231965	63V 220P [MB]
C2521	482212422027	25V 47U [MB]
C2530	482212151321	63V 8200P [MB]
C2531	482212151321	63V 8200P [MB]
C2532	482212440272	16V 33U [MB]
C2534	532212142661	63V 0.33U [MB]
C2535	482212231981	50V 0.033U [MB]
C2536	482212231981	50V 0.033U [MB]
C2537	482212143375	63V 0.22U [MB]
C2538	482212143375	63V 0.22U [MB]
C2540	482212441583	50V 0.68U [MB]
C2541	482212232863	50V 0.022U [MB]
C2542	482212232863	50V 0.022U [MB]
C2543	482212440196	16V 220U [MB]
C2544	482212440196	16V 220U [MB]
C2545	482212233496	63V 0.1U [MB]
C2546	482212233496	63V 0.1U [MB]
C2547	482212232863	50V 0.022U [MB]
C2552	482212143526	100V 0.047U [MB]
C2560	482212231784	50V 4700P [MB]
C2561	482212151252	63V 0.47U [MB]
C2562	532212142661	63V 0.33U [MB]
C2563	482212233496	63V 0.1U [MB]
C2625	482212231765	50V 100P [MB]

■ PACKING

■ TROUBLESHO

Play Operation

Power on

(with no disc loa

Disc loadin

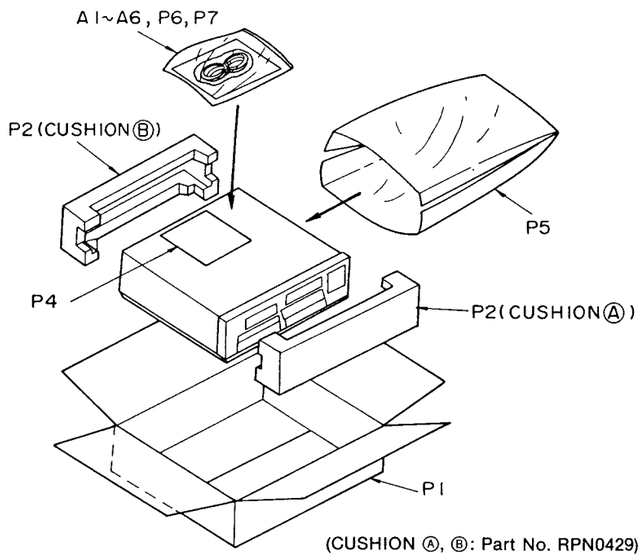
TOC reading

ues & Remarks
0. 1U
0. 1U
330U
0. 1U
330U
0. 1U
5. 6P
5. 6P
100U
0. 1U
0. 1U
470U
10U
3. 3U
0. 01U
0. 01U
100U
100U
0. 01U
22U
0. 01U
P. C. B. >
RS
4. 7K MB
100K MB
12K MB
100 MB
2. 2K MB
24K MB
5. 6K MB
10K MB
220 MB
22 MB
12 MB
100 MB
47K MB
15K MB
5. 1K MB
220K MB
12K MB
4. 7 MB
6. 8K MB
82 MB
6. 8K MB
1. 8K MB
18K MB
11K MB

Ref. No.	Part No.	Values & Remarks
R3561	482205110154	1/4W 150K MB
R3562	482205021204	3/5W 120K MB
R3563	482205110563	1/8W 56K MB
R3564	482211191495	1/8W 160K MB
R3565	482205210279	1/3W 27 MB
R3566	482205110229	1/8W 22 MB
R3567	482205028203	1/8W 82K MB
R3568	482205110474	1/4W 470K MB
		CHIP JUMPER(S)
R3801	482205110008	JUMPER MB
R3802	482205110008	JUMPER MB
		CAPACITORS
C2501	482212232863	50V 0. 022U MB
C2502	482212440433	25V 47U MB
C2503	482212232863	50V 0. 022U MB
C2504	482212231727	63V 470P MB
C2505	482212440433	25V 47U MB
C2506	482212233496	63V 0. 1U MB
C2507	482212231644	63V 2200P MB
C2508	532212142491	100V 0. 047U MB
C2509	482212231772	50V 47P MB
C2510	482212232442	50V 0. 01U MB
C2511	482212231746	50V 1000P MB
C2513	482212143375	63V 0. 22U MB
C2514	482212151252	63V 0. 47U MB
C2515	482212231746	50V 1000P MB
C2520	482212231965	63V 220P MB
C2521	482212422027	25V 47U MB
C2530	482212151321	63V 8200P MB
C2531	482212151321	63V 8200P MB
C2532	482212440272	16V 33U MB
C2534	532212142661	63V 0. 33U MB
C2535	482212231981	50V 0. 033U MB
C2536	482212231981	50V 0. 033U MB
C2537	482212143375	63V 0. 22U MB
C2538	482212143375	63V 0. 22U MB
C2540	482212441583	50V 0. 68U MB
C2541	482212232863	50V 0. 022U MB
C2542	482212232863	50V 0. 022U MB
C2543	482212440196	16V 220U MB
C2544	482212440196	16V 220U MB
C2545	482212233496	63V 0. 1U MB
C2546	482212233496	63V 0. 1U MB
C2547	482212232863	50V 0. 022U MB
C2552	482212143526	100V 0. 047U MB
C2560	482212231784	50V 4700P MB
C2561	482212151252	63V 0. 47U MB
C2562	532212142661	63V 0. 33U MB

Ref. No.	Part No.	Values & Remarks
C2563	482212233496	63V 0. 1U MB
C2625	482212231765	50V 100P MB

■PACKING

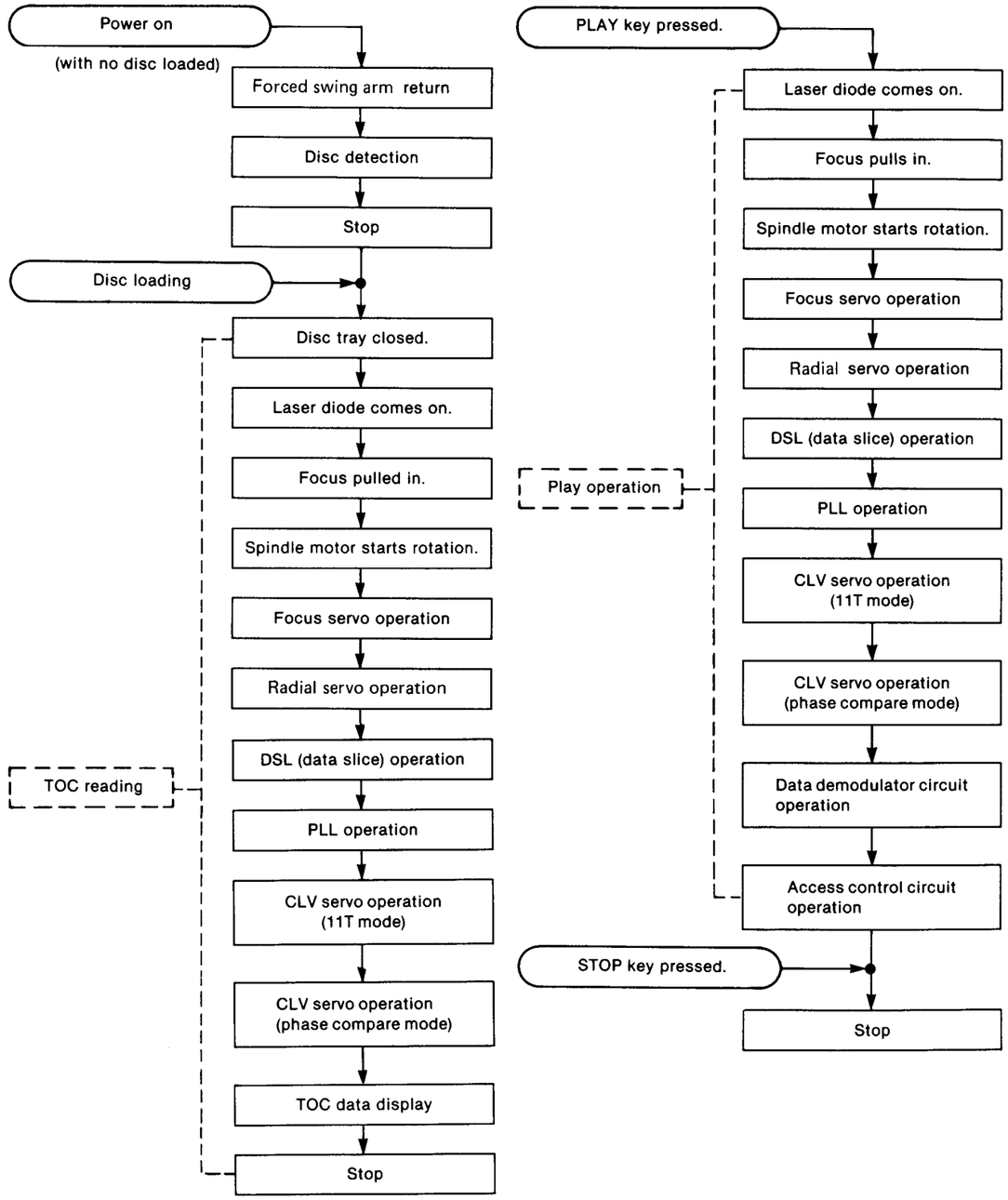


(CUSHION Ⓐ, Ⓑ: Part No. RPN0429)

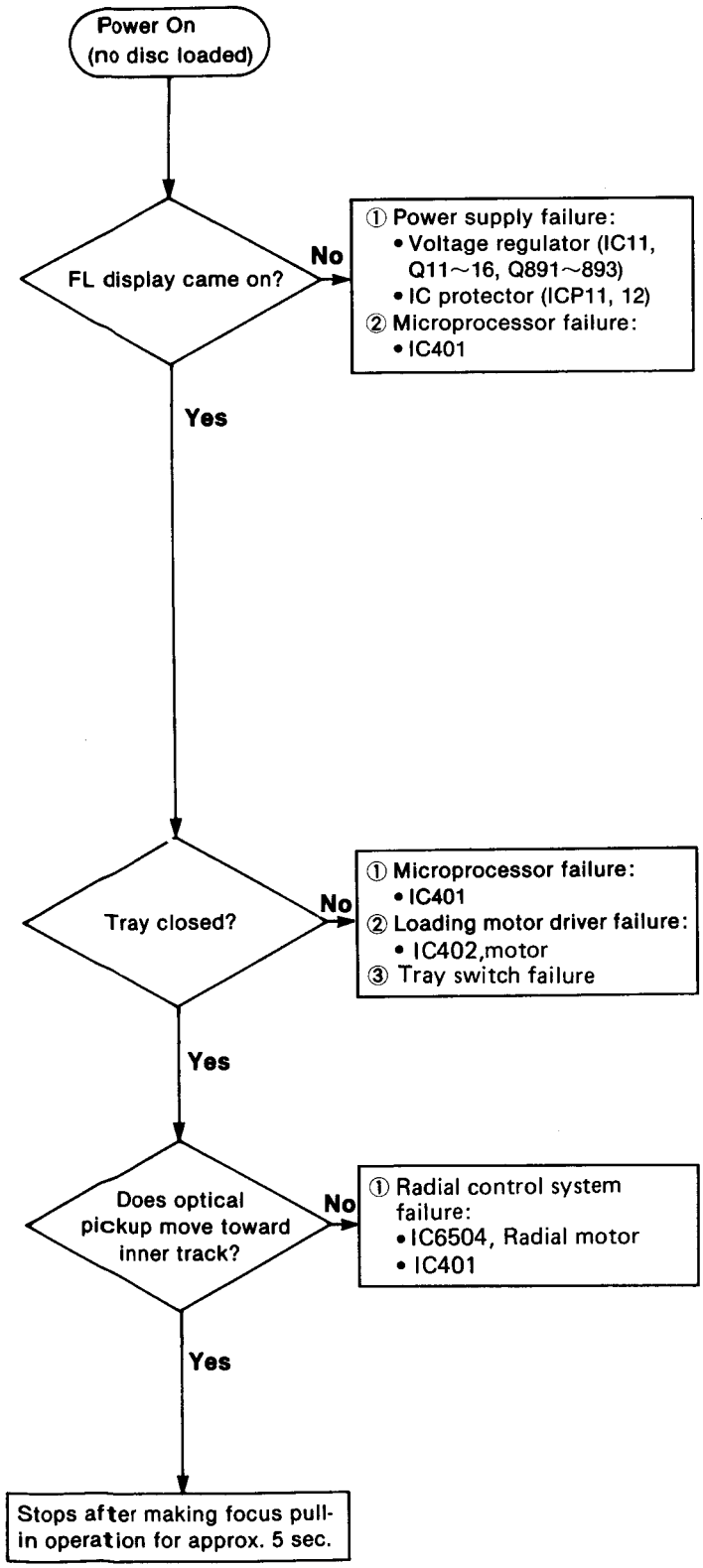
■TROUBLESHOOTING GUIDE

SL-PG520A Operation Sequence Check Sheet

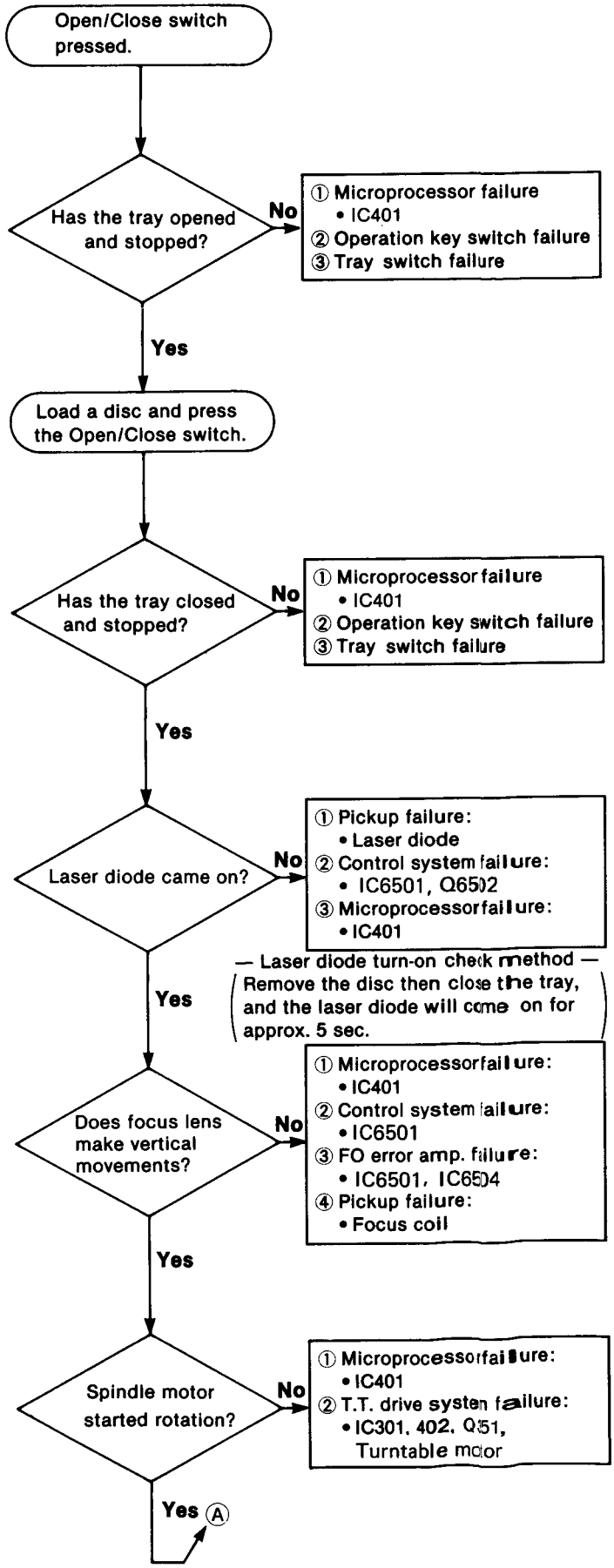
Play Operation Sequence

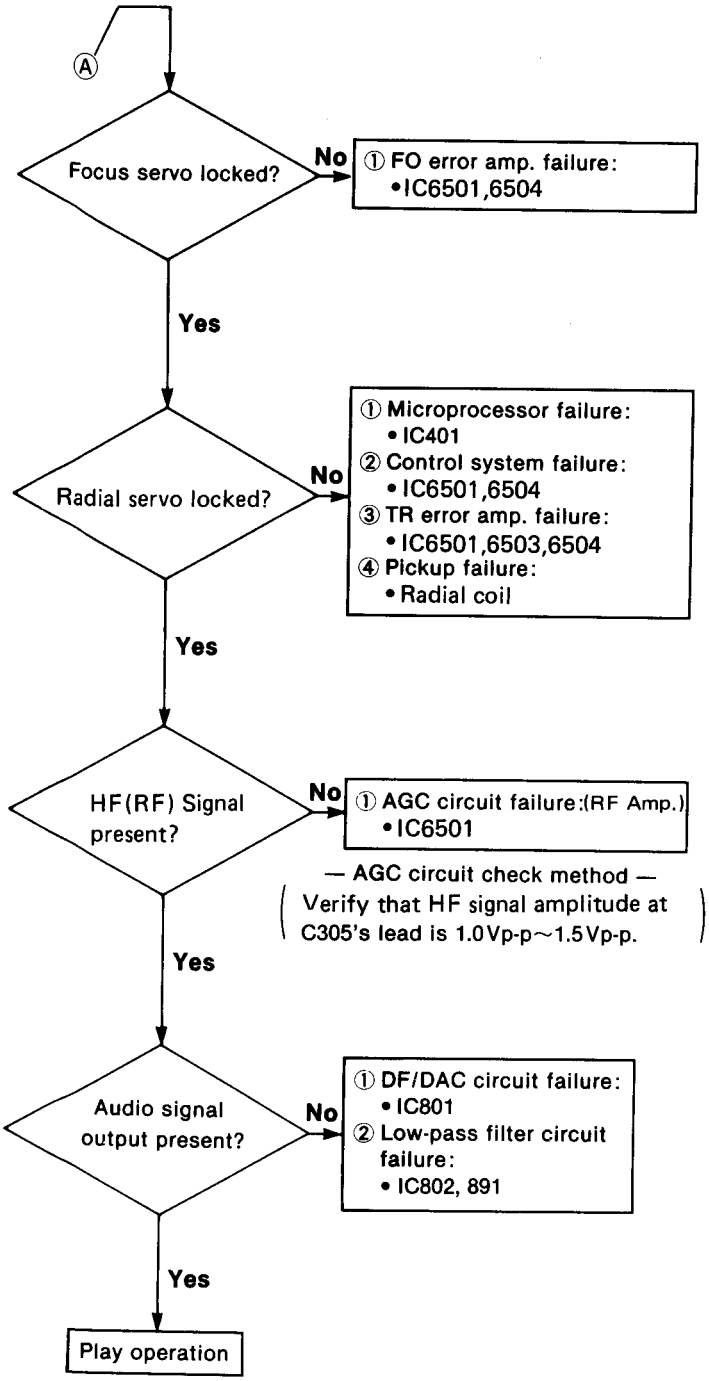


(Operation Sequence Just After Power On)



(TOC Read Operation-PLAY Operation)





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